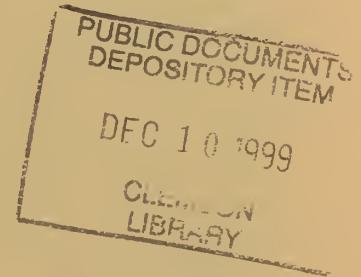


Draft Environmental Impact Statement General Management Plan



FORT BOWIE

National Historic Site • Arizona



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Draft Environmental Impact Statement

General Management Plan

FORT BOWIE

National Historic Site • Arizona

SUMMARY:

The general management plan will guide the management of the NHS for the next 12 to 15 years. Two alternatives were considered—a no-action and the park proposal. The proposed general management plan for the Fort Bowie National Historical Site continues the concept established—the principle of a very low level of development, intended to allow the visitor a “discovery” experience in a place of “historic abandonment.”

Direct questions and send comments to:

Superintendent
Fort Bowie National Historic Site
Dos Cabezas Route, Box 6500
Willcox, Arizona 85643-9737

Table of Contents

PURPOSE OF AND NEED FOR THE PLAN.....	1
INTRODUCTION	1
PURPOSE OF THE PLAN	1
NEED FOR THE PLAN.....	2
THE NATIONAL PARK SYSTEM.....	2
THE PARK.....	2
Park Purpose	3
Park Significance	3
Special Considerations.....	4
Service-wide Law and Policies.....	4
Description of the NHS	5
Planning Process	5
Issues.....	9
Cooperative Management.....	12
Topics Dismissed from Further Consideration.....	12
ALTERNATIVES	15
INTRODUCTION	15
Management Zone.....	15
NO-ACTION ALTERNATIVE	15
PROPOSAL.....	16
Estimated Development Costs.....	19
ALTERNATIVES CONSIDERED BUT REJECTED.....	20
Park Philosophy.....	20
Ruins Preservation	20
Moving the Visitor Center.....	21
Accessibility	21
Housing.....	21
Boundary Changes	21
ENVIRONMENTAL CONSEQUENCES.....	27
VISITOR EXPERIENCE	27
Affected Environment	27
CULTURAL RESOURCES	29
Cultural Landscapes—Affected Environment	29
Historic Structures—Affected Environment.....	29
Historic and Scenic Vistas from Within and Outside Park Boundaries—Affected Environment	31
Archeological Sites—Affected Environment.....	32
LONG-TERM HEALTH OF NATURAL ECOSYSTEMS	33
Affected Environment	33
Trailhead, Overlook, and Apache Pass Road.....	35
Trail.....	36
Cemetery.....	36
Cultural Landscape of the Triangular Valley.....	36
First Fort.....	37
Second Fort	37
Visitor Center and Trails to Second Fort	37
Housing, Maintenance Area, and Administrative Road.....	38

Butterfield Trail.....	38
Apache Spring	38
Grazing	39
ECONOMIC CONTRIBUTION TO GATEWAY COMMUNITIES.....	39
Affected Environment	39
ADJACENT LANDOWNERS.....	40
Affected Environment	40
OPERATIONAL EFFICIENCY.....	40
Affected Environment	40
SHORT-TERM AND LONG TERM EFFECTS OF THE PROPOSAL.....	42
IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES RELATED TO THE PROPOSAL.....	42
CUMULATIVE EFFECTS	42
 CONSULTATION/COORDINATION	43
PUBLIC INVOLVEMENT AGENCIES CONSULTED	43
PLANNING TEAM.....	43
National Park Service	43
Volunteers in Parks.....	43
CONTRIBUTORS.....	43
LIST OF RECIPIENTS	44
 REFERENCES CITED	45
 APPENDIX 1: LEGISLATION	47
 APPENDIX 2: FUTURE PLANS AND STUDIES NEEDED.....	49



PURPOSE OF AND NEED FOR THE PLAN

INTRODUCTION

Fort Bowie National Historic Site (NHS) is located in Cochise County in the southeast corner of Arizona (see Location Map). The park includes most of Apache Pass, which separates the Dos Cabezas Mountains on the north from the Chiricahua Mountains to the south. The Dos Cabezas and Chiricahua Mountains were the home and stronghold of the Chiricahua Apaches, and from there they fought to stop the Americans' westward advance, which reached their land in the 1840s and 1850s. The U.S. Army came to defeat the Chiricahuas, and a focus of their struggle for more than 20 years was Apache Spring, a dependable water source, and Apache Pass, a strategic area between the two ranges. The remains of Fort Bowie, which housed the soldiers during that period, are close to the ruts of the Butterfield Overland Trail and the ruins of a stage station. Nearby

are sites of a fight that took place between the Apaches and the soldiers and of an attack on a wagon train. All of these historic sites and events were tied to the pass, the spring, and to each other. Congress provided for them all to be included when it created Fort Bowie NHS in 1964.

PURPOSE OF THE PLAN

Because of the special historical importance and natural setting of Fort Bowie NHS, a comprehensive general management plan (GMP) is needed to manage resources and guide development and use. The master plan approved for Fort Bowie in 1975 is outdated and inadequate to deal with the variety of issues facing the historic site. The purpose of the new GMP is to decide what kinds of resource conditions and visitor experiences should ultimately be achieved and maintained throughout the historic site.

NEED FOR THE PLAN

Fort Bowie NHS was established on August 30, 1964, to preserve the site and remaining historic structures of "old Fort Bowie." In addition to the fort, the historic site was established to commemorate the soldiers, the Chiricahua Apaches, the Butterfield Overland Trail and Stage Station, and other associated ruins.

Fort Bowie NHS played a significant role in the "Apache Wars" of the late nineteenth century. It is near Apache Pass, which was an important transmontane route for Indians (Apache—Mescalero, White Mountain, San Carlos, Yavapi, Tonto, Mohave, and others) and later for Anglo explorers and settlers. The fort served as the nerve center of military operations against the Chiricahua Apaches and is where Geronimo and his followers finally surrendered. Important features include Apache Spring, 1854 Parke camp, Bascom Affair site, 1861 wagon train massacre site, battle of Apache Pass site, original Fort Bowie, and the second, more elaborate Fort Bowie.

The national historic site preserves a significant place in the chronicles of the American West. Because there is purposely very little modern development to intrude on the scene, the National Park Service (NPS) protects the integrity of the historic setting. The open vistas, remoteness, and rugged nature of the site allow the visitor to discover this place of historic abandonment.

The NPS mission at Fort Bowie NHS is to preserve the historic ruins of Fort Bowie, which was established by the U.S. Army in 1862, and interpret its significance in the military operations against Geronimo and his band of Chiricahua Apaches. The park will provide for visitor experience, perpetuate resources, and enhance recreational opportunities while ensuring organizational effectiveness.

THE NATIONAL PARK SYSTEM

The national park system represents a collection of our national heritage and includes many of the nation's most outstanding and significant natural, cultural, historic, and recreational resources. Each unit contains resources and values that make it something special—even nationally significant. The "niche" filled by each park is defined by its *park purpose*.

The National Park Service's purpose of conserving resources—whether they be natural, cultural, historic, or recreational—recognizes the importance of preservation as an active management tool. This preservation principle respects both natural and human relationships and emphasizes the value of maintaining land for the purpose of preserving natural ecosystems, historic significance, and outstanding recreational opportunities.

Balanced against the protection and preservation of these resources is the value of public enjoyment by present and future generations. Human use often can threaten the very resources that the National Park Service is tasked to protect. Many public debates have revolved around the balancing of these two National Park Service purposes. Whether it is telling a story or distributing use carefully to protect resources, the Service uses the principles of human and natural management to accomplish its mission. But at the very least, "these areas derive increased national dignity and recognition of their superb environmental quality through their inclusion jointly with each other in one national park system managed for the benefit and inspiration of all people." (16 USC 1a-1;1970)

THE PARK

Fort Bowie National Historic Site is located in Apache Pass, between the Chiricahua Mountains to the south and the Dos Cabezas Mountains to the north. Apache Pass also

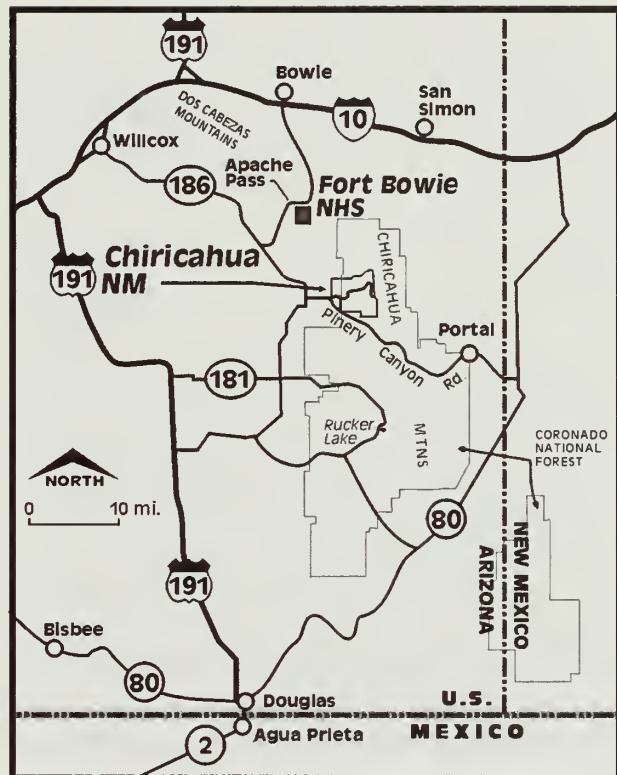
separates the San Simon Valley to the northeast from the Sulphur Springs Valley to the southwest.



It was the rich natural setting of a mountain corridor called Apache Pass and the nearby water source, Apache Spring, that attracted a procession of inhabitants and passersby: Indian, Mexican, and American. With the American acquisition of the Gadsden Purchase from Mexico in 1853 -1854, Apache Pass began to serve as a crossroads for emigrants, miners, surveyors, and soldiers. In 1858, the Butterfield Overland Mail established a station at Apache Pass and improved the Apache Pass road, but antagonism between American and Chiricahua

Apaches soon developed. In August 1862, atop a hill near Apache Spring, a small fort named Fort Bowie, after regimental commander George Washington Bowie, was established.

From 1861 to 1872 the "Cochise War" raged between the Apaches and the U.S. troops. During 1868-1870, the American soldiers abandoned the original location and established a new, enlarged fort at its present site. In the 1870's Fort Bowie's mission was expanded to fighting Indians throughout southeastern Arizona, southwestern New Mexico, and northern Chihuahua and Sonora, Mexico. Although a peace agreement was reached in 1872, outbreaks of fighting and war continued. Cochise died in 1874, but other Chiricahuas continued the resistance. The final campaign of the Apache War, that against the Geronimo band, operated largely out of Fort Bowie. The Geronimo band of 38 men, women, and children surrendered in 1886, ending 25 years of war between the Chiricahua Apache Indians and American



soldiers. In 1895, Fort Bowie was abandoned.

Park Purpose

The reason or reasons for which Fort Bowie National Historic Site (FOBO) was set aside as a part of the national park system is called its *park purpose*. Purpose statements are based upon legislation, legislative history, and historic trends.

Purpose

Fort Bowie National Historic Site was established on July 28, 1972, for the protection and interpretation of fort ruins. The historic site was established to also commemorate the Butterfield Overland Trail and Stage Station, the fort's soldiers, and the Chiricahua Apache Indians.

Park Significance

Significance is summarized in statements that capture the essence of Fort Bowie National Historic Site's importance to our natural and cultural heritage. Significance statements are

not an inventory of significant resources but rather describe the importance or distinctiveness of the aggregate of resources in the park. The following are the significance statements developed for the park staff with public input through the planning process.

Significance

- Fort Bowie played a significant role in the “Apache Wars” of the late nineteenth century. Fort Bowie served as the nerve center of military operations against the Chiricahua Apaches.
- Sites include: Apache Spring, the 1854 Parke camp, the Bascom Affair site, the 1861 wagon train massacre site, the Battle of Apache Pass site, the original Fort Bowie and the second, more elaborate, Fort Bowie.
- A Butterfield stage station built in 1858 is located on the site, as is a representative sample of the Butterfield Stage Road.
- Fort Bowie was the place where Geronimo and his followers finally surrendered.
- Fort Bowie contains the remains of the only Chiricahua Apache Indian Agency building.

Special Considerations

The following are special considerations for the management of Fort Bowie:

- Grazing is being phased out by agreement with the permittee pending funding for fencing of the park (lands are being managed by a Bureau of Land Management administrative agreement).
- Rights-of-way and/or easements are in effect for the Apache Pass Road (Cochise County), a gas pipeline (El Paso Natural Gas Company), and the Apache Pass electricity-transmission line (Sulphur Springs Valley Electric Cooperative).

Legislated Size of Park

The legislation authorizing Fort Bowie designated no more than 1,000 acres for the site; which it reached in the early 1990s with the purchase of 20 acres from a willing seller of private lands on the west end to protect the visual setting of Apache Pass.

Although the National Park Service has limited authority to increase the size of parks under the minor boundary adjustment clause, the legislation for Fort Bowie would have precedence over the general authority. Consequently, additional legislation would

be necessary to increase the size of the park. Aside from increasing acreage, there are other actions, such as scenic easement, formal agreements, and so on, that can be taken if deemed essential to preserve the resources and historic scene.

El Paso Natural Gas Company Pipeline

The El Paso gas line runs through the NHS roughly parallel to Apache Pass Road and under the visitor parking area at the entrance. This use predated park establishment when the land was under Bureau of Land Management (BLM) ownership and was included as a land use. On August 5, 1949, the BLM issued a right-of-way with no ending date or specific terms to El Paso Natural Gas Company to bury a pipeline. This preexisting right-of-way is authorized with a special use permit.

Buffer Zone

When the historic site was created, Arizona Public Land Order 035307 withdrew from mineral entry 590 adjacent acres of public domain administered by the BLM. This buffer zone was established to preserve, protect, and enhance scenic and natural values and to prevent adverse uses and visual intrusions. Over time additional acreage was added, and now all bordering BLM lands north and south of the park serve as a buffer zone.

Transfer of Public Lands

Arizona Public Land Order 035187 withdrew and transferred jurisdiction of public lands to the National Park Service from the Bureau of Land Management.

Service-wide Law and Policies

Management and operations within units of the national park system are guided by many laws, policies, and guidelines. The following are those that apply to this planning effort.

National Park Service Organic Act

National Environmental Policy Act

National Historic Preservation Act

Archeological Resources Protection Act
American Indian Religious Freedom Act
Native American Graves Protection and Repatriation Act
Endangered Species Act
E.O. 11988: Floodplain Management
E.O. 11990: Wetlands Protection
Federal Water Pollution Control Act
Clean Air Act
Architectural Barriers Act
Rehabilitation Act
Americans with Disabilities Act

Description of the NHS

The Apache Pass Road, a county road, traverses two sections of the park. At one point the road leaves the park and crosses a section of BLM land that lies between the two sections of park land. Along this stretch of BLM land, at the only point on the Apache Pass Road where the fort can be seen, there is an informal pullout and a rough trail leading about 50 feet to the overlook. There, a sighting pipe directs the observer's view to the fort and a wayside exhibit.

The park entrance is on the Apache Pass Road, roughly halfway along the north boundary. At the park entrance is an accessible composting toilet, a metal and wood shade structure with benches, and three interpretive waysides, all on the south side of the road over a buried natural gas pipeline. An unimproved parking area is across the road.

Today, visitors leave their cars and approach the ruins of the fort by a 1½-mile trail that begins with about 50 feet of steep decline from the road shoulder and includes steps and switchbacks. The trail leads past the stage station and ruts, the fort cemetery, the location of the first fort, and Apache Spring. Modern interpretive signs have been installed along the trail. As a result of many decades of abandonment, most of the adobe of the unprotected walls of the fort structures has "melted" back into the earth. Today, the ruins walls are protected under a layer of plaster.

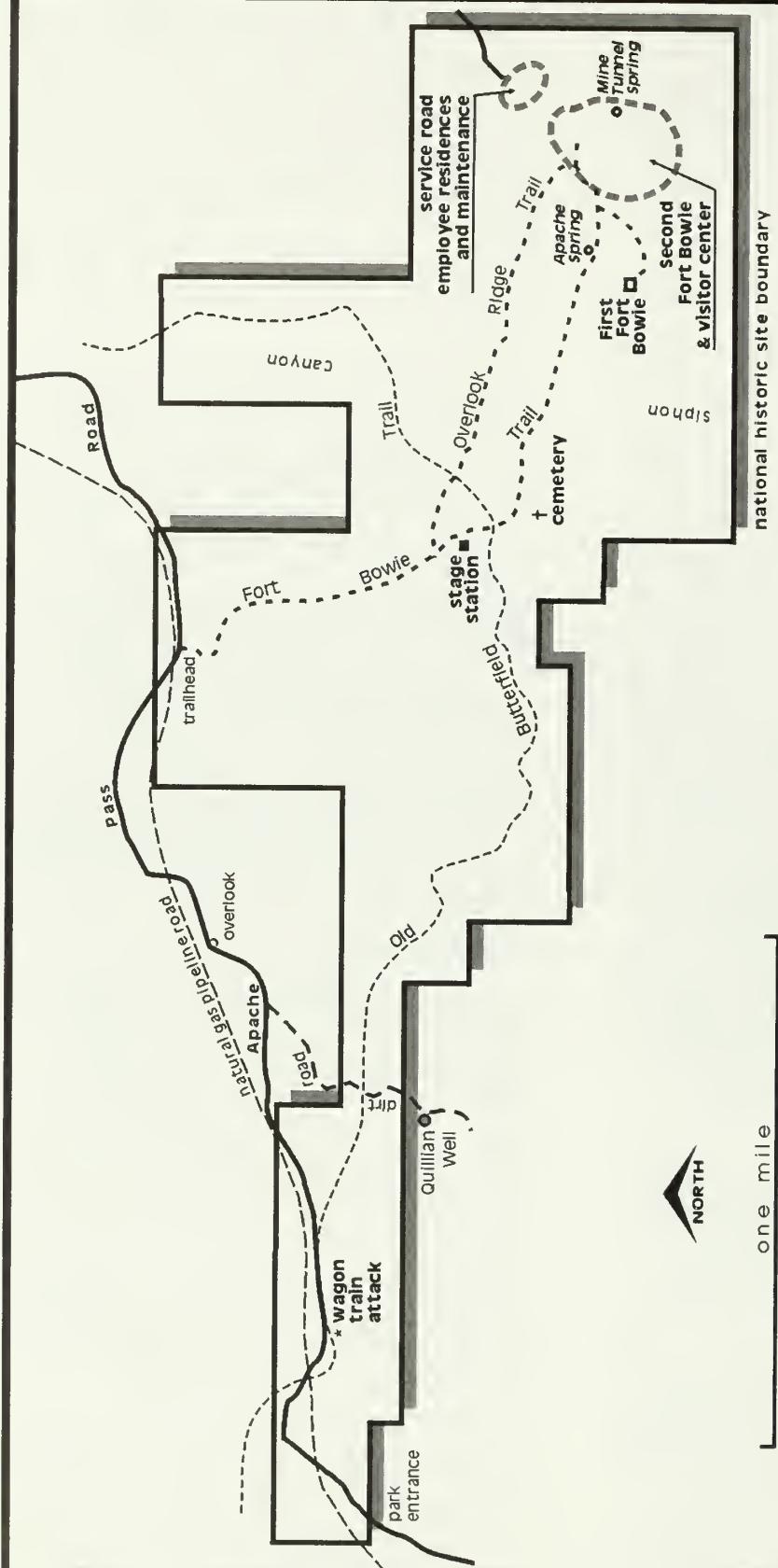
A small visitor center that provides exhibits and book sales is adjacent to the fort ruins. The building is approximately 25 by 40 feet and has electricity, exhibit and interpretation space, and a ranger office. Water is available at an outside drinking fountain and fire hydrant, and there is a pit toilet about 100 feet away. Nearby and out of sight of the fort are the maintenance area and two park residences.

Most of the historic places and the entrance trail that connects them, are in the eastern half of the park, and a large majority of visitors see only that section. The section to the west lies along the Butterfield Trail and includes the site of a wagon train attack. An unimproved road crosses the NHS there, leading from the Apache Pass Road across the narrowest section of the park to Quillian Well, just south of the park (see *Existing Conditions Map*). The road connects two sections of BLM buffer land (see *Land Ownership Map*). There is also a small mine near the well, to which BLM is required (by the 1872 mining law) to provide access. The road is infrequently used by the mine owner to reach his mine.

Planning Process

Prior to this current general management planning effort, a similar process began in 1992. Scoping sessions by the park staff, a public open house, a press release, and a letter to 392 people on the mailing list for both Fort Bowie NHS and Chiricahua National Monument (NM) raised a series of issues.

A national reorganization in the National Park Service transferred the responsibility for Fort Bowie to another regional office and the planning project ended. The general management planning process was restarted in 1996 with a different planning team. The first step in the second process was a review of the work previously done and incorporation of the 1992 public comments into the current planning process.



national historic site boundary

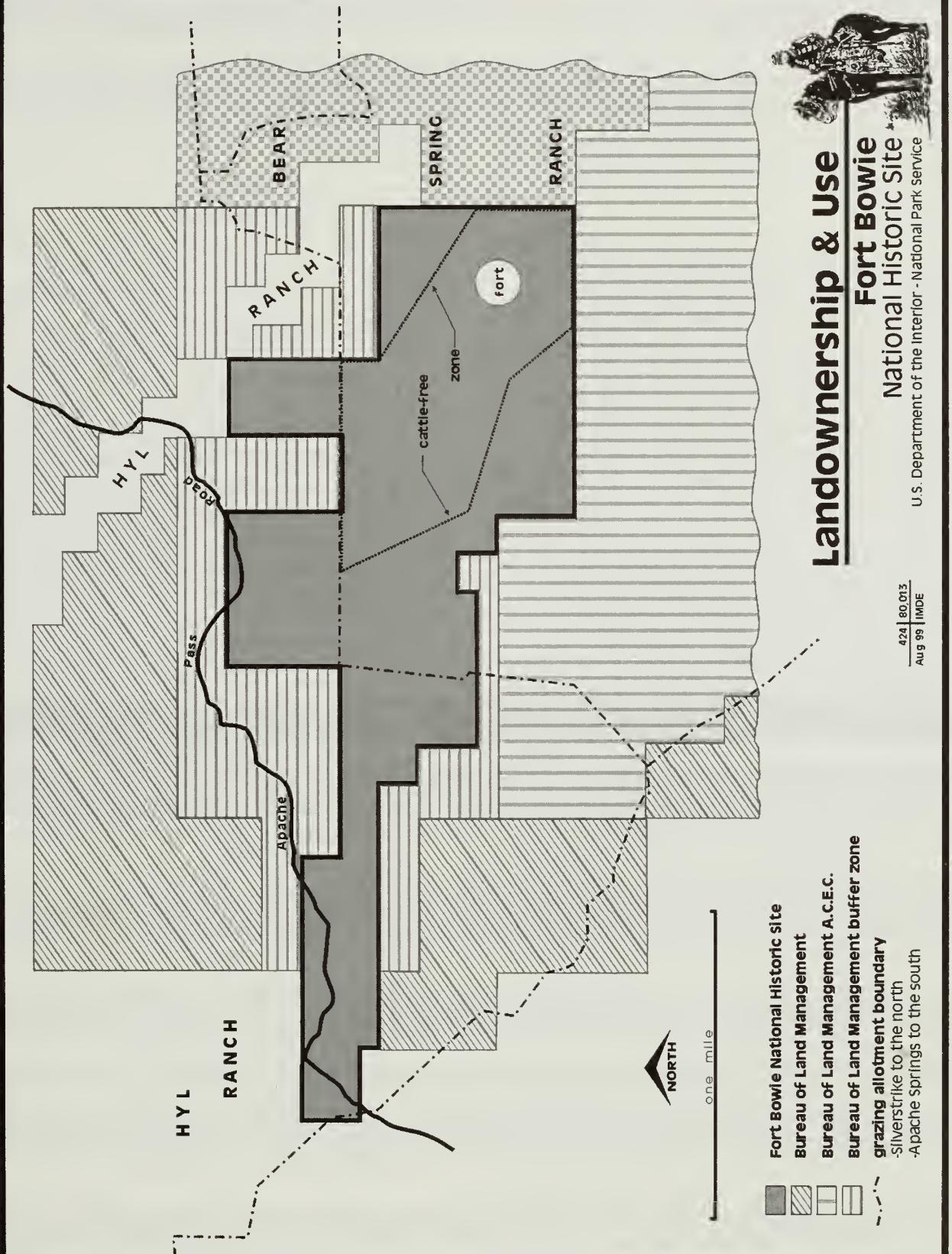


Existing Conditions

Fort Bowie National Historic Site

U.S. Department of the Interior - National Park Service

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For the current project, a newsletter was mailed in early May 1998 to all interested parties and those on the park mailing list informing them of GMP projects for both Fort Bowie NHS and Chiricahua NM. The newsletter invited the public to meetings to discuss both plans. Notices of the public meetings were also sent to nearby newspapers.

Four meetings were held the week of May 18th in the towns of Portal, Willcox, and Bowie, and at a school just outside of Chiricahua NM. A total of 19 people attended the meetings. The GMP process was described at each meeting, as were the two parks. There was general appreciation expressed for the parks, and recommendations were made not to change them.

All suggestions were discussed and notes were taken. Another 24 mailed responses were received from newsletter readers. In addition to the newsletter, letters were also sent to six Apache tribes (Apache—

Mescalero, White Mountain, San Carlos, Yavapi, Tonto, Mohave) and one nation (Mescalero) in Arizona, New Mexico, and Oklahoma, and to two interested individuals (American Indians). No responses were received.

A Notice of Intent to publish an Environmental Impact Statement was published in the Federal Register in June of 1999. A 30 day public comment period followed ending on July 15, 1999. A website (<http://www.nps.gov/planning/fobo>) was established to facilitate making information about the planning process available to the public. A total of 5 responses were received requesting information on the planning process. Groups included one organization interested in land issues, one interested in handicapped accessibility, and two unaffiliated individuals. The following table lists the issues raised from the two scoping efforts and how they were addressed in the planning process:

Results of Scoping

Issue	Location in EIS
Fully restore and rebuild Fort Bowie	Alternatives, Alternatives Considered but Rejected
Stay with the intent of the 1975 master plan, which is to essentially leave the park unchanged as much as possible, leave discovery of the park to the visitor without the aid of interpretation and other services	Alternatives, Alternatives Considered but Rejected
Expand development within the park by adding more facilities	Alternatives, Alternatives Considered but Rejected
Allow the ruins to erode or melt with weathering	Alternatives, Alternatives Considered but Rejected
Pave Apache Pass Road	Alternatives, Alternatives Considered but Rejected
Do not pave Apache Pass Road	Alternatives, Proposal
Remove grazing from within the park	Alternatives, Proposal
Provide additional housing or space for VIPs and/or seasonal staff	Alternatives, Proposal
Improve the dirt track from the administrative office to the visitor center for mobility impaired visitors	Alternatives, Proposal
Provide information at the park entrance for mobility impaired visitors so they can drive to the administrative site rather than hike	Alternatives, Proposal
Pave a parking space near the rest room at the park entrance so mobility impaired visitors can more easily use the facilities	Alternatives, Proposal
Construct an accessible rest room at the visitor center	Alternatives, Proposal
Keep the rustic, remote character of Fort Bowie; do not overdevelop	Alternatives, Proposal

Results of Scoping

Issue	Location in EIS
Dig a new well near the housing area, then close well, remove the pipeline from Siphon Canyon, and restore the area	Alternatives, Proposal
Complete an archeological survey and other studies listed in Appendix 2	Appendix 2, Future Plans and Studies Needed

Issues

Visitor Use and Interpretation

Access to the Site—The only access to Fort Bowie NHS is via the Apache Pass Road, a dirt road that winds through the park. Traditionally its rugged character has been considered by NPS to be a part of the “discovery” character of the NHS and a beginning of the park experience. However, what is considered a rustic and exciting road to some is a deterrent to others. The condition of the road may deter visits by drivers of recreation vehicles and large sedans. A 1996 visitor study of the two parks found that although 12% of the visitors to Chiricahua were in recreation vehicles, only 8% of the visitors at Fort Bowie were (University of Idaho 1996). The study found that of the visitors to Chiricahua, only 12% went on to visit Fort Bowie. Of the 18 reasons given by respondents for not visiting the NHS “unpaved or bad road” was the second most frequently listed reason (8.6%). (The most common reason (55%) was “not enough time.”)

From time to time there has been talk of the county paving the entire road to make travel from the town of Bowie, past Fort Bowie, to route 186 more comfortable, and the northeastern section between Bowie and Siphon Canyon has recently been paved. If the next section through Apache Pass is paved, the increased ease of travel to the park could change the visitor experience and increase visitors to the NHS.

How Visitors Experience the Site—After driving on the dirt Apache Pass Road, visitors arrive at the park entrance. Development

consists of an unpaved parking area, a handicapped accessible rest room, some waysides/ informational bulletin boards, and tables and shade structures. Access to the site is via a 1½-mile dirt footpath, with various historic sites along the way interpreted by small, unobtrusive signs. The trail is not solely a means of reaching the fort but serves as a quiet introduction to the park. En route, it ascends through a small valley, passing the Butterfield Trail and stage station ruins, the old cemetery, the Chiricahua Apache Agency ruins, the site of the battle of Apache Pass, Apache Spring, and the site of the first fort. As the visitor ascends the trail, the flag above the fort, the first site of the fort, comes into dramatic view. This trail and this first view of the flag are frequently mentioned by visitors as major elements in their enjoyment of the park.

The 1975 master plan envisioned a park in which those things commonly associated with national parks—signs, interpretive waysides, and structures—would exist at a very minimal level. Visitors to the place would come upon it—“discover” it—as if it had recently been abandoned, and to some extent—aided by printed guides keyed to elements of the historic landscape or by published materials—would figure out for themselves what the site means.

Development and management of the park followed the spirit of historic abandonment/discovery, but with a more liberal application. In the 1996 visitor study, 88% of the respondents supported the historic abandonment concept, and 92% thought that the current level of development and interpretation had achieved that goal.

Accessibility for Mobility Impaired Visitors—

For visitors unable to hike the trail to the fort, there are instructions at the bulletin board and kiosk on how to drive to the site or contact staff for information about how to get to the site. It is important that visitors—especially those with respiratory or mobility problems—understand how far the fort is, what the trail difficulties are, and that the fort is actually “only” ruins (to some people, a historic fort implies restored buildings and a parade ground). The overlook on the Apache Pass Road is inadequate in terms of providing sufficient interpretation and accessibility. It is the only spot where the fort can be seen from the road. Access must be provided so that mobility impaired visitors can experience the prime park features.

Cultural Resources

Ruins Preservation—Many of the fort buildings were constructed of adobe walls over stone foundations. The foundations extend a foot or more above grade, and the remaining adobe portions extend 2 to 4 feet above the foundations. Some sections of adobe wall have eroded away completely. Preservation of the ruins of the adobe fort buildings is essential to the long-term integrity of the fort as an NHS. Adobe is a very impermanent material if unintended, and especially if exposed to the weather, as were the fort’s adobe walls. Prior to the establishment of the NHS, the buildings were not protected by roofs, and much of the adobe walls were lost to erosion.

Although much research and experimentation has been done on the preservation of adobe at Fort Bowie and other historic sites in the southwest, no preservation technique that is both effective and esthetic has been found. Some years ago, faced with the steady

deterioration of the ruins, NPS elected to encase or “encapsulate” the remaining adobe in a lime plaster. The resulting cover, which has been stained different colors in attempts to find an esthetic color, although successful in protecting the ruins, is not satisfactory from a historic appearance standpoint. Short of constructing roofs over the ruins, there is no apparent alternative. As measured against the continued weathering of these historic ruins, encapsulation is considered to be the lesser of two evils.



Additionally, removal of vegetation, especially woody plants growing immediately adjacent to the ruins as well as from the interior of the two forts (parade grounds, paths, etc.) is ongoing to preserve the ruins and historic scene. The cultural landscape report, when it is completed, will further guide management.

Historic Scene—Based on historical photographs and the results of the cultural landscape report (CLR), further work is needed to preserve the historic scene in selected places. The cemetery is inaccurately portrayed because the fenced area is only a portion of the original cemetery; grave markers are inaccurately located or depict incorrect information. Interpretation is

limited. These inaccuracies present misinformation to the visitor and reflect poorly on the integrity of the history the National Park Service gives to the public.

Further work is needed to continue removal of plants, primarily mesquite trees, in various areas to restore the cultural landscape, in particular in the triangular valley below Apache Spring and the parade ground of the second fort. This will be based on the results of the CLR. Wildland fire historically sustained open grassy vegetation, so prescribed burning may be appropriate for maintenance.

Natural Resources

Grazing—Although not mentioned in the park's enabling legislation, two grazing allotments are still active and are managed by the Bureau of Land Management (BLM) under an expired agreement with the NPS. The two allotments extend over considerable acreage of BLM land outside the NHS, with only small parts of them (approximately 750 acres) within the NHS. In addition to the forage used in the NHS, the portion of the Silverstrike and Apache Spring allotments in the park serve as a connection between the two allotments, and the unimproved road to Quillian Well serves as a stock corridor to water. Because grazing is not legislatively authorized, it is not a legitimate park use. Some of the park has been fenced to protect the ruins from livestock and prevent visitor/cattle encounters. The cattle-free area is about 250 acres immediately surrounding the fort and most of the entrance trail.

Water Resources—Half of the flow of Apache Spring is piped and diverted to a stock water tank as was agreed upon several years ago in a water rights settlement between a rancher and the National Park Service. The diversion prevents the spring from functioning naturally, which in turn affects plants and animals relying on the water source.

Development

Visitor Center—The existing pit toilet a few hundred feet from the visitor center is inadequate and not handicapped accessible. After a 1½-mile walk and time spent at the fort and visitor center, and preparatory to a 1½-mile walk back to the road, a comfortable and sanitary rest room is a necessity. Water and access to the septic system is available.

Housing and Maintenance Area—There are two modern houses for employees, but there is no setup for park volunteers. If staffing increases, the need to provide additional housing will arise. All maintenance needs are served from a facility close to, but out of sight of, the fort. The facility contains office space, storage, work bays, fuel pumps, and a yard. Maintenance facilities are adequate with the recent construction of storage rooms. The service road to the houses and maintenance yard is steep but in good condition. From the yard to the fort and visitor center, however, the road is in poor condition, barely passable by passenger car.

Water System—At one time the housing and maintenance area was going to be built about 2/3 mile to the northwest of its present location, at which place a well was dug. Instead, the proposed development was subsequently built at its present location, but the completed well at the original location was still used. Surface pipe brings the water up and down the intervening hills to a 10,000-gallon hillside tank, from which there is gravity flow to the houses and shops. The pipe was laid through an important cultural resource (the fort's trash dump). The exposed pipe is an unsightly intrusion, and the entire stretch must be monitored and maintained. The cost for electricity to pump water is high, and the 10,000 gallons of water is sufficient only for the initial suppression of fires.

Trails and Overlook—Trails are generally in very good condition and have been maintained well. Work needs to continue where erosion damages and cuts the trails.



Also some of the trails through the fort ruins should be made accessible to visitors with mobility impairment to allow them to experience the resources. The overlook on the Apache Pass Road is inadequate in terms of providing accessibility.

Cooperative Management

Boundary

There is no intent to acquire additional lands to increase the size of the historic site. Adjacent land uses are compatible, but if in the future there are inconsistent lands uses, the National Park Service would consider actions to minimize conflicts by such means as scenic easements, buffer zones protection, willing seller/willing buyer purchases, administrative boundary changes, or other methods. There is a legislated cap in the park size, so an amendment to the legislation would be necessary to increase the park beyond 1,000 acres. A boundary study would be conducted, and the recommendations of that study would be implemented.

Topics Dismissed from Further Consideration

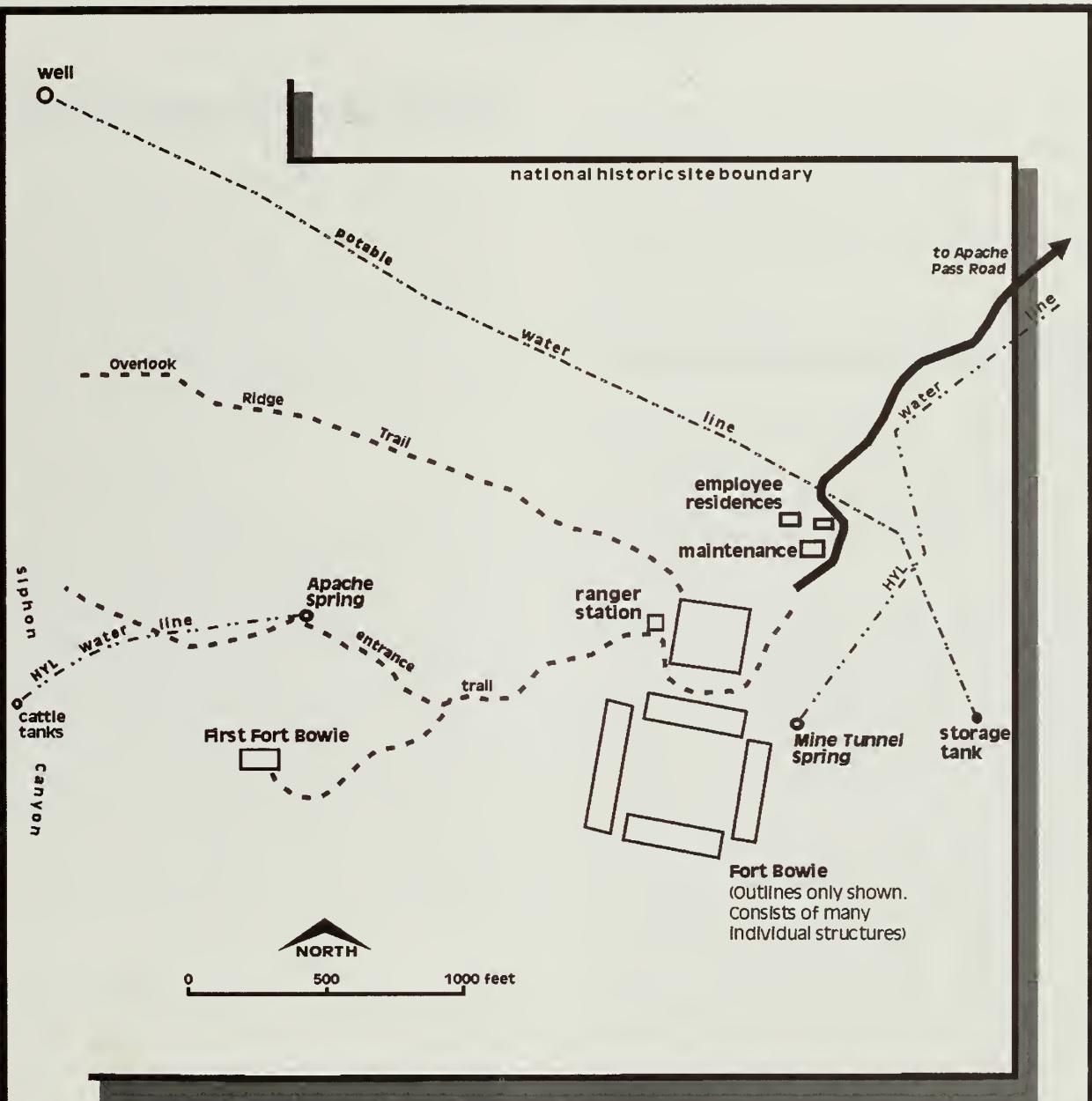
Traditional Uses

During the scoping process, six Apache tribes and one nation were sent the planning newsletter. Because there was no response, the superintendent wrote a personal letter to each tribe and the one nation asking for their participation and involvement, again receiving no response.

Consequently, traditional uses at Fort Bowie NHS are unknown. The park is continuing its attempt to establish a dialogue with interested Native American groups. In addition, the park has requested an Ethnographic Overview and Assessment, pending funding.

Concessions

There are no concessions at the park, and, because of the proximity of local services, there is no need to provide additional services.



Administrative, Fort, and Trail Area

Fort Bowie National Historic Site

U.S. Department of the Interior - National Park Service



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ALTERNATIVES

INTRODUCTION

Two alternatives, a “no-action” alternative and the National Park Service proposal are presented in this chapter. The proposal is the proposed General Management Plan for the Fort Bowie National Historical Site and when adopted will serve as the park’s general management plan. The plan will guide the management and development of Fort Bowie for the next 12 to 15 years.

Management Zone

Fort Bowie NHS contains several sites of historic interest (the fort, stage station, etc.), but the critical element that supports the “discovery” and “historic abandonment” mood that is so important here is the land that surrounds those sites, which are essentially unchanged since the active days of the fort. The hills and valleys of the NHS and the sites associated with historic events that took place around the fort and other historic places provide the setting and “feel” of the fort. The desired future for the park is the preservation of those hills and valleys, with their “natural” appearance and historic scene.

Of necessity, there are nonhistoric elements within this historic scene, such as the small visitor center and the employee housing, but these are minor intrusions and, as in the case of the housing, are out of sight.

To maintain this historic continuity, and because the entire NHS is listed on the National Register of Historic Places, the NPS will not subdivide the park into zones (historic zone, natural zone, etc.), but will manage the entirety as one historic area.

Visitors will be encouraged to walk the 1½-mile trail from the trailhead to the fort in order to see the historic places along the way in their context. They will learn about those places from the wayside exhibits and

experience the thrill (as it has been described) of first seeing the flag flying high over the fort. For those who are unable to walk the distance, an alternative accessible route will be provided, and special interpretive material will explain to them what they would have seen on the trail.

NO-ACTION ALTERNATIVE

All environmental documents are required to analyze at least two alternatives, a proposal and a no-action alternative. Under the no-action alternative, existing conditions as described below would continue at Fort Bowie NHS.

Visitors would continue to reach the historic site by traveling on the Apache Pass Road, a partially paved, graded county road. The primitive pullout a short distance before the trailhead, with a dirt parking area, trail to the overlook, and fort sighting pipe would be retained.

Visitors would continue to reach the fort from the existing trailhead. The unimproved parking area, accessible composting toilet, a metal and wood shade structure with benches, and three interpretive waysides would be retained. Visitors would continue to leave their cars and approach the ruins of the fort via a 1½-mile trail. The existing fence, grave markers, and interpretive signs describing the cemetery would be retained. In the triangular valley leading to the fort, vegetation would continue to be managed (tree cutting, mesquite and exotic species removal, and fire management) to maintain the appearance of the historic fort based on the results of the cultural landscape report. In the first and second fort areas, the routine preservation of stone and adobe masonry foundations would continue. Vegetation would be managed by removing trees growing next to and among the ruins in order to retain the open area to protect and view

ruins. Exotic species would be removed to protect native species. The visitor center, pit toilet, and trails throughout the fort area would be retained. Interpretation, sales activities, and office space would continue to be the main functions in the visitor center.

Under the no-action alternative, the houses, maintenance complex, offices, and utilities would be retained. Water would continue to be piped over ground to the housing/administrative area. Administrative access to the fort would continue along the existing dirt road, including one paved section on a steep segment of the road.

The Butterfield Trail would continue to be used and maintained as a horse and hiking trail, with vegetation management to control exotic species.

Grazing in the park would be phased out under the no-action alternative. The historic Apache Spring would continue to be used as a water source for cattle grazing off of park land.

PROPOSAL (SEE MAP)

With the exceptions described below, the current level of development and interpretation and the pattern of visitor use are appropriate for Fort Bowie and would be maintained under the proposed plan. This is a position that takes ideas from both the “discovery/historic abandonment” concept and from a more typical park development model.

Apache Pass Road—The approach to Fort Bowie, on the existing Apache Pass Road, serves as an introduction to the undeveloped nature of the park, and the park would encourage that it be retained as a dirt road. Paving the road could lead to its widening and straightening, and hence to higher speeds that might cause accidents and injury to wildlife. Therefore the NPS would request that Apache Pass Road not be paved from Emigrant Canyon across Apache Pass. The park would use its influence to prevent its

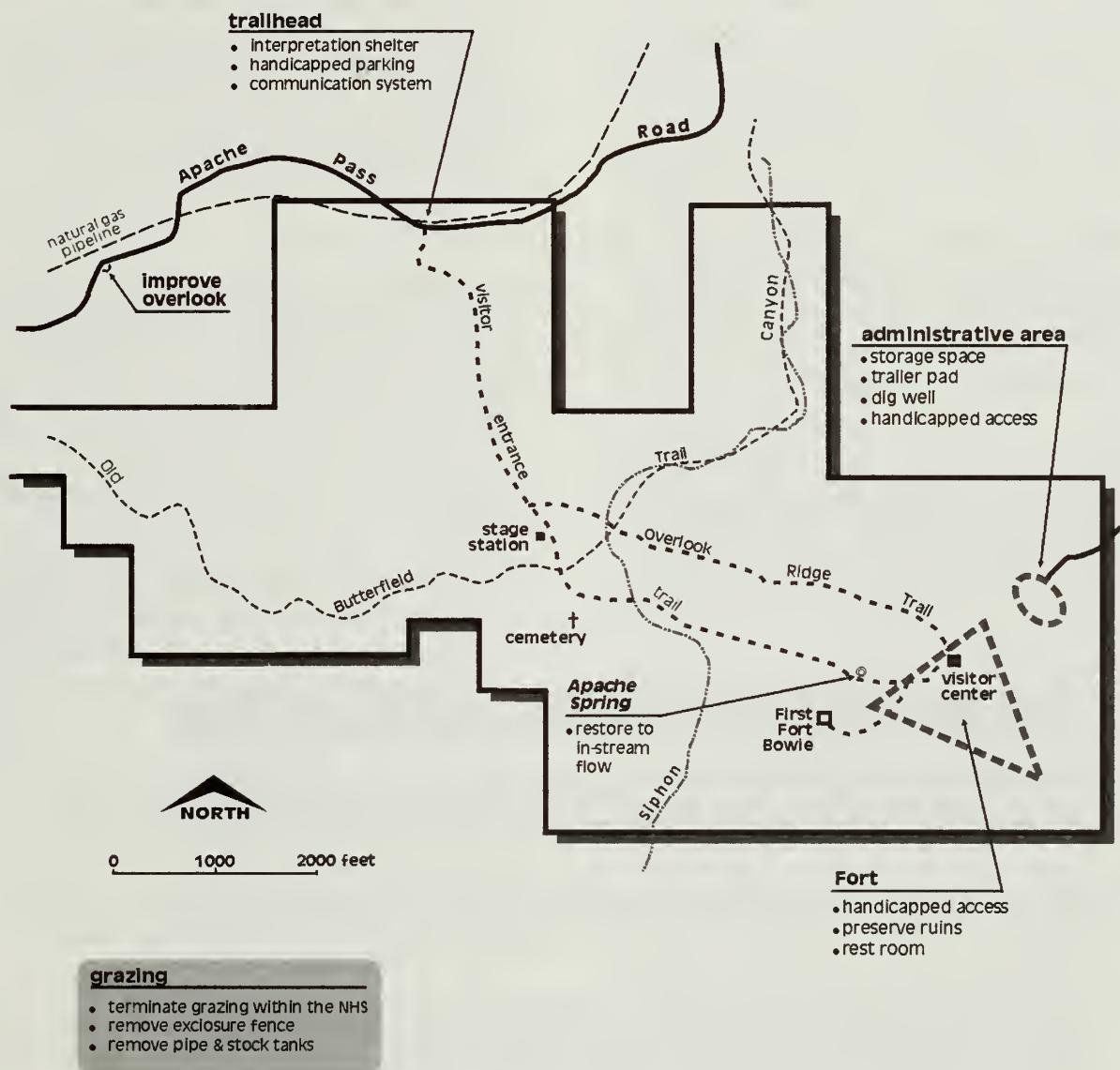
paving unless the road is rerouted to the north, outside the park.

Overlook—The only spot from which the fort can be seen from the road is from a minimally developed overlook. Because the overlook is on Bureau of Land Management (BLM) land, the park would work in partnership with BLM to improve the parking and make the trail to the lookout handicapped accessible.

Park Entrance/Trailhead/Trail—Under the proposal, the entrance area/trailhead would be redesigned into a setting that is appropriate for the spot that introduces visitors to the fort trail and the fort itself. An open-sided information and interpretation shelter, about 15 feet by 20 feet, would be the formal introduction to the park. It would be located at the roadside, near the existing rest room. The shelter would be built of slump block to give an adobe look and match existing buildings. The shelter would provide a description of the trail and the historic resources along it and would encourage the reader to take the trail, by describing it as an informational and scenic introduction to the fort. Information on how to reach the fort by road will be provided to visitors with mobility impairments.

A phone or radio at the shelter would connect the visitor directly to the ranger station at the fort for additional information about accessibility or other matters. A surfaced handicapped parking space would be provided close to the shelter and rest room. No changes are anticipated to the route or historic nature of the trail. The trail would continue to serve as the primary interpretive route to the historic spots along the way and as a mood-setter for the visit to the fort itself.

When additional research provides the necessary guidance, the cemetery’s enclosing fence would be relocated to its historic location, as would the incorrectly placed grave markers (information is based upon



Proposed General Management Plan

Fort Bowie

National Historic Site

U.S. Department of the Interior - National Park Service



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historical park data). More complete interpretation would be provided.

Park Landscape—The park would continue to maintain the landscape in the valley along the trail in its 1862-1894 appearance by removing mesquite and exotic vegetation and by maintaining a fire management program.

Ruins Preservation—The first fort area would continue to receive routine preservation treatment of the exposed stone foundations and would be interpreted. There would be no changes to the site or its visitor use.

Until a better means of preserving exposed adobe is available (one that is esthetically and historically acceptable), the second fort ruins would remain encapsulated within lime plaster. In the meantime, the park would pursue two objectives:

- Seek adequate and assured funding to maintain and test the encapsulated ruins.
- Contribute to preservation research and experimentation.

The park would cooperate with and encourage such research, both generally and at Fort Bowie. As successful techniques are developed, the NPS would consider their applicability to the park ruins.

An interpretive theme for the park would deal with this preservation problem, especially

- the nature of adobe and why it melts
- the problem of finding a satisfactory adobe preservation technique for a historic site
- the benefits and disadvantages of encapsulation and why it is being used
- an exhibition adobe wall (historic or new) showing the means of construction and the results of melting

Vegetation Management—Vegetation in and near the fort would continue to be managed to retain the open, easily viewed appearance. Exotic vegetation would be removed.

Visitor Center—No changes are recommended for the visitor center building, unless the construction of a new rest room is incorporated with the existing structure.

This plan recognizes the need to provide accessibility into the fort and visitor center and recognizes that the only feasible means of doing it is from the housing/maintenance area. A short driveway would be constructed from the maintenance area to the visitor center along the existing utility corridor. Parking for two vehicles would be provided close to the visitor center.

Accessibility—As stated previously, the best and most satisfying means of getting to the fort is via the long trail from the trailhead, because from it the historical and scenic character of the NHS is revealed bit by bit to the walker. Visitors who are disabled, entering from the maintenance area, miss that introduction. Therefore, it would be necessary to replace the actual experience with interpretive material at the visitor center. This printed or audiovisual material would try to capture the experience of the trail and its unfolding historical resources for those who are unable to enjoy it in person.

An accessible rest room would be provided in the fort area, and as many of the paths among the ruins as feasible would be accessible as well. The park would discuss with accessibility experts the most practical type of wheelchair to have at the visitor center for loan to visitors.

Administrative Area—This plan recommends no changes to the park housing area. Within the existing “footprint” of the maintenance area, a pad with utility hookups would be constructed for a volunteer-owned recreation vehicle. The existing administrative road would continue to provide access to the housing/maintenance area and maintenance access to the fort and visitor center.

Water System—A new well would be dug closer to the housing area and piped into the system, additional water storage would be added, and a fire sprinkler system would be added to the visitor center. The existing well would be capped (unless it is needed for providing water to cattle), and the 2/3 mile of

surface pipe would be removed and the ground restored to a natural condition.

Old Butterfield Trail—The Old Butterfield Trail, west of its junction with the main park trail, and its section of the park, would not be altered. This area would retain its “discovery” environment.

Grazing—Grazing would be phased out and the park boundary would be fenced. The historic Apache Spring would continue to be used as a water source for cattle grazing off of park land. The current permittee has ½ water right to Apache Spring. The NPS would pipe the water off of the park for cattle use.

Boundary—The entire park would be fenced and a boundary study would be conducted.

Operating Expenses—The proposed rest room, the boundary fence, and the accessible

route to the visitor center will require some maintenance, but it will be minimal and will be offset by the removal of the cattle fence and the 2/3-mile-long water pipe. The changes recommended by this GMP would cause little or no increase to operating expenses.

Commercial Services—Individual business permits (covering both Fort Bowie and Chiricahua) allow guided horseback, hiking, and bus tours. Books are sold in the visitor center by the Southwest Parks and Monuments Association. No additional commercial services are needed or recommended.

Park Museum and Collections—The proposal calls for improvement in the heating, ventilation, and air conditioning system for the protection of collections.

Estimated Development Costs		
Description	No Action*	Proposal*
Pad for VIP/seasonal trailer, maintenance area		\$20,000
Accessible route from maintenance to visitor center		\$35,000
Removal of cattle enclosure fence		\$12,000
Shelter and interpretive signs, trailhead		\$25,000
Handicapped accessibility and parking, trailhead		\$ 2,000
Communication system trailhead to VC (solar powered) cellular phone		\$10,000
New rest room at VC		\$110,000
Overlook on Apache Pass Road (200 feet of trail)		\$ 5,000
Fence park boundary	\$210,000	\$210,000
Remove waterline, new well and connections		\$50,000
<i>Subtotal, gross construction cost</i>	\$210,000	\$479,000
<i>Project planning & advanced planning</i>	\$25,000	\$62,270
Total cost	\$235,000	\$541,270

*All costs are shown in 1999 dollars

ALTERNATIVES CONSIDERED BUT REJECTED

Park Philosophy

Considerable debate was given to the overall philosophy that should guide the current GMP, and it was discussed at the public meetings and in the mailed responses. In addition to the way the park is today, two contrasting models were considered—the 1975 master plan and conventional park development.

The basic intent of the 1975 master plan was to leave the park as unchanged as possible, to evoke a “discovery” experience in an environment of “historic abandonment.”

Existing facilities such as the visitor center and the residences exceed the intent of the master plan. Other things, such as waysides, plant identification markers, and informational or warning signs, however, could be removed or replaced by less noticeable versions to help restore the mood sought by the master plan.

But the purpose of Fort Bowie NHS is the preservation and use of Fort Bowie and its related historic sites. People are not attracted to the park because it is abandoned, but because of the historic events that happened there. Abandonment is a pleasant mood in which to visit the fort, but it is not why the unit was preserved as part of the national park system.

On the other hand, if conventional park development concepts were followed, decisions on adding facilities would be based on whether they increase the visitor’s enjoyment and understanding of the park. More development, probably including a paved road to the park, would be typical additions were this concept followed. Because the present discovery experience is well liked by a majority of visitors and is in keeping with the park purpose, significance, and mission goals, this alternative was also rejected.

Ruins Preservation

The State Historic Preservation Office (SHPO) has expressed a preference for removing the lime plaster “encapsulation” that provides protective cover for the fort’s adobe ruins. Their opinion is that being able to see the natural, weathering adobe ruins—as opposed to the plaster—would be of historic and esthetic interest to visitors. As the “melting” process proceeds to its end (low, resolidified mounds of adobe at the base of the walls), the gradual process could be the source of interpretation. The walls, which are 3 to 6 feet high, probably would be reduced at the rate of one foot every 40 to 60 years.

Although the existing lime plaster covers are unsightly to some, an effective and esthetic preservation for adobe might be many years in coming. Because the park mission is to preserve the historic fabric, removing the lime plaster and allowing the ruins to molder would not ensure their preservation—and could even result in the removal of some of the historic fabric.

Notwithstanding the unsightliness of the plaster covering, the existing upright forms of encapsulated adobe provide the viewer with a perception of buildings and the spatial relationships between buildings. Were the adobe to weather down to the stone foundations, which stand a foot or two above the ground, the layout of the buildings would still be apparent, but less so than with the adobe superstructure. Because it is important for the visitor to be able to picture the fort as a collection of associated buildings, it is important to maintain the walls that provide that picture.

Another proposed treatment that was considered was to construct protective roofs over several selected ruins and remove their lime plaster covering. This procedure is quite expensive, but would provide almost complete protection to the ruins. The rest of the ruins would remain encapsulated as they are today. The idea was rejected because the shelters would be even more visually

intrusive than the plaster encapsulation and would fundamentally alter the fort's appearance.

Moving the Visitor Center

The current visitor center stands close to the fort and is in full view of it. The idea was expressed that the structure should be moved to another location so as to be unseen or less seen from the fort and the approach trail. However, to accomplish this goal, the building would have to be moved away from the fort area.

Two problems present themselves. First, the ranger on duty at the visitor center needs to be able to see the fort and the visitors in it in order to be aware of vandalism or accidents, and such a view is only possible when the visitor center itself is in view of the fort. And second, there appears to be no space that the building would fit and not intrude on other historic resources. Moving the building would cause a considerable expenditure of money and some disturbance to the site to achieve only very limited benefits.

Accessibility

An alternative that would reconstruct the park entrance trail to provide access to visitors with mobility impairments was considered. Reconstructing the trail would provide people with disabilities the same experience as other visitors. However, the topography is uneven, with the trail beginning with a steep downward pitch, followed by a long uphill section. Making the 1½-mile trail accessible would be very expensive, would cause considerable environmental disturbance, and would alter the experience that is now such an important part of the park visit. Even if the trail were made accessible, it is unlikely (given the long uphill slope and the hot weather) that many people with disabilities would choose to go on the trail or would be physically able to do so. For those reasons, this alternative was rejected.

Housing

At present the existing park housing provides accommodations for two park employees. Should additional employees be needed, more housing would be required. The existing housing/ maintenance area has no room for expansion without encroaching on the historic scene. Topography limits building space in other areas, and more housing would be visible from the fort. Therefore, alternatives to meet additional staff housing needs outside the historic site would be considered.

One alternative to in-park housing is leasing homes in the community to sublease to seasonal employees. Park administration could establish relationships with local property managers, negotiate lease terms, secure rental agreements, provide housing assignments, and collect rents.

Because of the park's rural setting, very few rental properties are on the market in the area. According to local planners and Realtors, no new housing development is planned for the future. Park administration could seek out local citizens interested in renting single rooms in their homes and serve as an information clearinghouse, putting landlords and possible NPS employees in contact with one another.

Boundary Changes

Three boundary expansions were considered but rejected.

- Because of the way the northern boundary was drawn, the Apache Pass Road passes through the park, exits and meanders about, and reenters the park. Moving the park boundary north to coincide with the road in adjacent survey sections 1 and 3 would simplify park administration and patrolling and would provide motorists and park visitors a clear and visible boundary. This stretch of the road also includes historic resources, including parts of the historic Tucson wagon road, which was in use during the Fort Bowie era. The Bureau of Land Management, who owns the land, has in the past expressed a willingness to discuss a boundary change that would move the boundary north to Apache Pass Road.

- Siphon Canyon, at the point where it leaves the park, has a clearly recognizable segment of the Butterfield Trail. The 40-acre portion of the HYL Ranch that contains the canyon mouth also causes a gap in the BLM buffer. Development of this private land would be visible from the park.
- The third area is some or all of approximately 1,000 acres of Bear Springs Ranch that forms most of the eastern boundary of the NHS. The property contains a number of historic resources that are tangentially related to the fort, including Bear Springs (once the water source for the fort), several historic structures, and a National Register-listed house that was constructed in 1898 with material from the fort.

Although each of these potential expansions makes some sense, this plan does not recommend them:

- First, given the management practices of current boundary neighbors, it is unlikely that incompatible uses will negatively impact the NHS. In the event that incompatible uses do threaten the integrity of the NHS several options could be considered, including acquisition of private lands, land exchanges with the Bureau of Land Management, or the acquisition of scenic easements. Lands adjacent to the park are managed in a compatible manner. Boundary adjustments may be considered in the future if incompatible uses start to occur.
- Second, most of the northern boundary is along the BLM's Buffer Zone; therefore related cultural resources are already protected.
- Third, the Bear Springs Ranch properties are neither essential to the maintenance of the Fort Bowie historic scene nor necessary to the telling of the fort's story.

Comparison of the Proposed Plan and No-Action Alternative

Proposal	No Action
Add storage space and trailer pad at HQ	No additional improvements
Phase out grazing and fence park boundary	Phase out grazing and fence park boundary
Retain plaster covering on ruins	Same
Rustic shelter, communications system, increased interpretation and information at trailhead	Status quo
Handicapped accessible vehicle route from maintenance area to the Visitor Center	No additional access
Advise county to not pave Apache Pass to road	Current policy is against paving
Make roadside overlook handicapped accessible	Remain inaccessible
Dig new well, remove 2/3-mile pipe, sprinkler system in VC	Status quo

Fort Bowie—Comparison of Environmental Impacts

Proposal	No Action
<ul style="list-style-type: none"> + interpretation of the cemetery corrected with negligible to minor impact to the setting. + restoration of the historic scene along Fort Bowie's access trail—although removal of mesquite trees would alter the scene, the result would more accurately depict the landscape as it was during the fort's active years. + handicapped accessible rest room made of material resembling historic period be constructed behind or attached to the existing visitor center. + telephone or radio at the trailhead would improve communications / provide access information to visitors with disabilities. + new road and parking provide visitors with mobility impairment access to park resources. 	<ul style="list-style-type: none"> + continued misrepresentation of the cemetery to the public. + allows dense mesquite growth along trail to continue. + obstacles to overcome before visitors with mobility impairments can experience Fort Bowie.—visitors with mobility impairments have minimal access to fort ruins / continue to limit handicapped.

Fort Bowie—Comparison of Environmental Impacts

Proposal	No Action
<p>+ aboveground waterline would be removed and the site returned, as nearly as possible, to its original condition.</p> <p>+ new handicapped accessible road, from the maintenance area to the visitor center, would be constructed over the underground utility corridor and would disturb no new ground; however, it would introduce a nonhistoric element into the historic landscape.</p> <p>+ vehicles parked by the visitor center that are used by visitors with mobility impairments would be visible from the fort.</p> <p>+ visitor center would continue to be a visible, nonhistoric element within the otherwise historic landscape.</p> <p>+ road from the maintenance area to the fort and visitor center would no longer be used / revegetated.</p> <p>+ foot trails from the visitor center to the fort would be made handicapped accessible—using routes and materials compatible with the historic landscape.</p> <p>+ ongoing vegetation management (mesquite removal) is continued.</p>	<p>+ aboveground waterline would remain</p> <p>+ visitor center would continue to be a visible, nonhistoric element within the otherwise historic landscape.</p> <p>+ ongoing vegetation management (mesquite removal) would continue.</p>
<p>+ few changes in the existing fabric treatment.</p> <p>+ stone masonry foundations periodically repointed and capped.</p> <p>+ lime plaster encapsulation, of original adobe wall sections, maintained.</p> <p>+ progress in the field of adobe preservation would be noted— significant changes are not anticipated.</p> <p>+ additional interpretation of encapsulation</p> <p>+ cemetery—correctly locating the grave marker reproductions / more accurately reproducing and locating the wooden picket fence</p>	<p>+ present preservation treatment for all of the exposed stone masonry foundations, at both forts and the Butterfield station, consists of periodic repointing and capping.</p> <p>+ remaining adobe wall sections periodically maintained.</p>
<p>+ drilling of a new well in the housing and maintenance area and the removal of the present aboveground pipeline.</p> <p>+ removal of grazing from within the park boundary.</p> <p>+ within-park fence removed and entire boundary fenced to exclude livestock.</p> <p>+ existing visitor center visible, nonhistoric element within an otherwise historic scene.</p>	<p>+ no new construction or other visual intrusion</p> <p>+ intrusive aboveground waterline and the within-park cattle fence remains.</p> <p>+ existing visitor center visible, nonhistoric element within an otherwise historic scene.</p>
<p>+ cattle grazing in the park would be eliminated. / would benefit archeological resources</p> <p>+ mesquite removal project would expose new archeological sites have been discovered—further interpretation opportunities for the park visitor and greatly enhance the park's interpretation in general.</p>	<p>+ few changes affect the parks' archeological resources—little chance of integrity loss.</p> <p>+ allows cattle to continue to graze which would continue to impact archeological resources.</p> <p>+ enclosure surrounds the fort, visitor center, Overlook Ridge, and most of the main trail keeps cattle out of most important historic zone</p> <p>+ sites would continue to be difficult to record and protect</p>

Fort Bowie—Comparison of Environmental Impacts

	Proposal	No Action
Trailhead, Overlook, Apache Pass Road	<ul style="list-style-type: none"> + reconstruction increase rainfall runoff only slightly/ minor and localized. + efforts during construction to prevent soil loss + use same as no-action alternative, except that additional accessibility information would be provided at the ramada + encourage greater use of the administrative road access—contribute somewhat to increased airborne dust closer to the major ruins area + minor, short-term negative impact <ul style="list-style-type: none"> + same as no-action 	<ul style="list-style-type: none"> + unpaved parking areas and Apache Pass Road modify natural water sheetflow patterns during heavy rainfall periods—water is prevented from flowing in some areas and is channeled to other areas—alters the natural erosion and vegetation patterns along the road corridor—exotic plants and other plants along the road edge + localized increase in airborne dust that contributes to a reduction in air quality. + disruption of the ability to hear natural sounds at the site nearest to Apache Pass Road. + picnicking provides food attraction for wildlife + moderate, localized negative impact.
Trail		<ul style="list-style-type: none"> + trail requires periodic maintenance and erosion control. + localized soil compaction, interruption of natural water flow, and disruption to wildlife caused by visitor foot traffic. + minor and localized negative impacts
Cemetery	<ul style="list-style-type: none"> + relocate the markers to their historically correct locations / move the enclosure fence to its proper location. + provide expanded interpretation of the cemetery and its story + minor soil compaction + large mammals could be hampered slightly in their movements by the larger fenced area. <ul style="list-style-type: none"> + same as no-action 	<ul style="list-style-type: none"> + continued presence of the grave markers contributes slightly to soil compaction caused by visitor foot traffic. T + enclosure fence slightly alters large mammal movements. + minor and local impacts.
Cultural Landscape of the Triangular Valley		<ul style="list-style-type: none"> + removal of mesquite - use of chain saws provides a major short term negative effect to the natural quiet - involves some surface soil disturbance and an alteration of the existing plant life and possibly animal life - possible short-term encouragement for establishment of such exotic plants as Lehmann lovegrass, a moderate and localized negative impact. - help to restore conditions natural fire regime
First Fort	<ul style="list-style-type: none"> + same as no-action 	<ul style="list-style-type: none"> + routine preservation provides minor natural ecosystem impacts + soil compaction along the trail / within the ruins themselves. + periodic stabilization efforts require the use of mechanical equipment conflicts with the natural quiet + moderate negative impacts, but infrequent and localized
Second Fort	<ul style="list-style-type: none"> + same as in the no-action. + may be minor and localized negative impacts from the construction of the walls—some soil compaction / vegetation trampling / temporary intrusions on natural quiet from equipment. 	<ul style="list-style-type: none"> + similar to first fort, except larger. + include the use of vegetation management to control exotic plants and brushy plants such as mesquite + chain saws creates a disruptive impact on the natural quiet / only occasionally needed.

Fort Bowie—Comparison of Environmental Impacts

	Proposal	No Action
Visitor Center and Trails to Second Fort	<ul style="list-style-type: none"> + similar to no-action + construction would cause localized and moderate soil disturbance. + disturbances include vegetation displacement, disruption of visitors' ability to hear natural quiet, and air quality impacts caused by dust from the construction activity. + mitigation methods include wetting the ground to reduce airborne dust, revegetating with native plants, and timing some of the construction for less disruption to visitors + increase vehicular sounds for visitors at the visitor center and in the second fort. + effect depends upon additional visitors who use access route 	<ul style="list-style-type: none"> + some soil compaction along trails. + limited impacts on nocturnal wildlife
Housing, Maintenance Area	<ul style="list-style-type: none"> + VIP trailer pads with hookups increase mechanical + some soil compaction + general increase in human-generated impacts (noise, light, and food source). + short-term moderate negative impact to natural quiet and air quality + pipeline over the saddle to Siphon major positive effect along the length of that pipeline—wildlife movements no longer hampered / frequent maintenance no longer required 	<ul style="list-style-type: none"> + moderate localized impact to the natural ecosystem + alteration to its previous natural water flow + nighttime lighting attracts insects and bats + human food (residences) serves to attract other wildlife— activity negatively impacts the natural quiet
Butterfield Trail	<ul style="list-style-type: none"> + similar to no-action 	<ul style="list-style-type: none"> + soil compaction along trail + wildlife disturbed by the occasional humans and horses + erosion accelerated by foot / horse traffic
Apache Spring	<ul style="list-style-type: none"> + natural ecosystem benefits from natural spring flow / stock tanks removed. + short-term local negative impact from new water pipeline + natural quiet impacted temporarily. + spring water available for use by wildlife 	<ul style="list-style-type: none"> + local negative impact, affecting flora and fauna along the length of Siphon Canyon + negatively affects migrating animals + negative impact by reduction of water (additional research needed to quantify impacts)
Grazing	<ul style="list-style-type: none"> + similar to no-action 	<ul style="list-style-type: none"> + with the removal of cattle, there would be no further negative environmental affects.
Economic Contributions	<ul style="list-style-type: none"> + short term: a one-time benefit to the economy of \$973,000 in total combined sales, approximately \$78,000 in tax revenue, and create 39 jobs for the life of the projects— not necessarily in local economy. + long term—every 1,000 additional visits, approximately \$38,000 in combined sales, \$3,200 in increased tax revenue, and 2 additional jobs + long term—every \$100,000 expended by the park, approximately \$180,000 in combined sales, \$15,000 in increased tax revenue and 8 additional jobs + minor short-term beneficial effect on the economy from the expenditure of funds for infrastructure improvements. 	<ul style="list-style-type: none"> + continue to provide income to the local economy..

Fort Bowie—Comparison of Environmental Impacts

	Proposal	No Action
Adjacent Landowners	<ul style="list-style-type: none"> + grazing phased out and water for cattle from Apache Spring (based upon HYL Ranch's 1/2 right) available for cattle operations off of park lands. + no other impact to private landowners 	<ul style="list-style-type: none"> + similar to proposal
Operational Efficiency	<ul style="list-style-type: none"> + replacement water greatly decrease the annual maintenance and upkeep of water system. + new well eliminate the 2/3-mile section of water pipeline and associated power conduit + replacement of the visitor center rest room facility enhances efficiency by substantially reducing operational costs + fencing boundary reduces amount of patrol time—trespassing minimized. 	<ul style="list-style-type: none"> + continuation of the status quo—excessive human and fiscal resource commitments continue to be devoted to the inefficient water system + existing rest room facility would continue to uses expensive maintenance and upkeep. + increased patrols are necessary to warn hunters of the actual boundary—frequent trespassing.

ENVIRONMENTAL CONSEQUENCES

VISITOR EXPERIENCE

Affected Environment

The mood created by this little-developed park is an essential part of a visit to it. The trail to the fort, with its wayside exhibits that explain what happened there, is a quiet, uncluttered introduction to the historic place. Finally, coming upon the fort—heralded by the first view of the flag over the crest—is like a reward for having walked the 1½ miles. Visitors frequently say that the trail, the flag, and the silence—“getting there”—were a major part of their experience in the park.

The current level of development strikes a balance between a deserted historic place and an actively preserved and interpreted historic park—a balance that makes the walk to the fort both a part of the story and a provocative introduction. With only minor exceptions (i.e., rest rooms, handicapped accessibility) there would be no further development to alter this ambiance.

According to a 1996 visitor study (76 responses, 88% of questionnaires distributed), and from informal comments frequently made to the ranger, the “historic abandonment” concept as it has been carried out is successful and is appreciated by the visitors. Visitors both approve of the NPS goal of maintaining a remote setting with a minimal number of improvements and think that the goal has been achieved.

- 88% of the respondents support the management objective of historic abandonment.
- 92% of the respondents think that the current level of development and interpretation achieves that goal.
- 94% of the respondents thought the waysides along the main trail were extremely important or very important to their visit, and 86% thought their quality was very good or good.

Impacts of No-Action Alternative

In order to preserve this “mood,” no changes are planned for the trail or for the historic sites along it, with the possible exception of the post cemetery. At present, a wooden picket fence surrounds the cemetery, however, it is not the correct size and needs to be expanded, existing grave markers are in the wrong places for the graves they designate, and, after four years of research, remaining graves can now be accurately marked. Although no action would leave the visitor’s experience about the same as it is now, it would mean continued misrepresentation of the cemetery to the public.

Over the years, areas along the access trail have become overgrown with mesquite, making it difficult for park visitors to understand historic events and their relationship to existing terrain. During Fort Bowie’s existence and before, the mesquite growing in Apache Pass was restricted to a few riparian areas and scattered trees elsewhere. Historic events occurring in the pass were played out in what were open grasslands with occasional oaks on the north slopes. Today this area has been invaded by mesquite, which has been allowed to spread by fire suppression and cattle grazing. Some wayside exhibits are surrounded by this dense mesquite, diminishing visibility of historic structures and making interpretation of events difficult. A no-action alternative would allow this dense mesquite growth to continue to obstruct visibility and encroach upon the historic scene, making visitor understanding of events difficult and further altering natural processes.

There are several obstacles to overcome before visitors with mobility impairments can experience Fort Bowie. At present they are directed to reach the fort ruins by a back road. This is accomplished by making a



telephone call from one of the nearby towns or by reading informational signs at the trailhead and in the town of Bowie. Once at the ruins, the visitors are allowed to either walk 500 feet to the visitor center or, if the case necessitates, drive a maintenance road through the ruins to the visitor center. The visitor center is handicapped accessible; however, there is no accessible rest room. Visitors with mobility impairments have minimal access to fort ruins. No action would continue to limit handicapped accessibility and make these visitors' experience both uncomfortable and inconvenient.

Impacts of Proposed GMP

The present interpretation of the cemetery has several inaccuracies that can be corrected with negligible to minor impact to the setting. Correcting the size of the enclosure fence can be done by doubling its length to match the existing stone footing. Recent research has discovered two Fort Bowie cemetery plot plans drawn to scale. By using these and other historic cemetery lists and descriptions,

the inaccurately placed markers would be moved to mark the correct graves. It would also be possible to identify all the remaining graves with historically accurate markers. Completion of these additions and corrections would improve the visitor's understanding of the cemetery and hardships of frontier life.

Efforts are under way to restore the historic scene along Fort Bowie's access trail. Based upon a series of historic photographs taken from 1868 to present we are able to see changes that have occurred to the landscape over time and take action to stop the spread of encroaching mesquite. Several areas are designated to have mesquite removed by mechanical methods and have grasslands restored. Fire would be reintroduced as a means to maintain the historic scene. Although removal of mesquite trees would alter the scene, the result would more accurately depict the landscape as it was during the fort's active years.

The GMP proposes that a handicapped accessible rest room made of material resembling that used during the historic period be constructed behind or attached to the existing visitor center. This type of construction and location would minimize the intrusion of the structure on visitor visibility and park experience. The proposed telephone or radio at the trailhead would improve communications and provide access information to visitors with disabilities. The new road to the fort and its parking area, as well as the accessible trails in the fort area, would provide visitors with mobility impairment access to park resources.

CULTURAL RESOURCES

Cultural Landscapes—Affected Environment

Although a cultural landscape inventory (CLI) is not yet complete at Fort Bowie, a potentially significant cultural landscape associated with several historic periods and events is clearly present. The structural and biotic evidences of activities associated with the first and second forts, the Indian agency, the cemetery, the Butterfield Overland Mail Company station and trail, the site of the Bascom affair, and the site of the battle at Apache Pass are included within this cultural landscape. This encompasses the entire park. The CLI (scheduled for FY99) will identify contributing characteristics of the landscape, which will include patterns of spatial organization, natural systems and features, circulation patterns, all underground and aboveground structural remains, and all vegetative patterns and features characteristic of the significant historic periods. Until the CLI is completed, all potentially contributing landscape elements would be preserved.

Impacts of No-Action Alternative

The aboveground waterline that passes through a known archeological site (the fort dump) would remain. Ongoing vegetation management (mesquite removal) is compatible with the present understanding of

historically significant vegetation patterns and would continue. The Fort Bowie visitor center would continue to be a visible, nonhistoric element within the otherwise historic landscape.

Impacts of Proposed GMP

Under the GMP, the aboveground waterline would be removed and the site returned, as nearly as possible, to its original condition. Development at the proposed new well site, in the maintenance and housing area, would not constitute a significant impact to the cultural landscape according to the present understanding of landscape values. The proposed new handicapped accessible road, from the maintenance area to the visitor center, would be constructed over the underground utility corridor and would disturb no new ground; however, it would introduce a nonhistoric element into the historic landscape. Vehicles parked by the visitor center that are used by visitors with mobility impairments would be visible from the fort. Because the accessible rest room would be added to the back of the visitor center, it would not be visible from the fort. The visitor center would continue to be a visible, nonhistoric element within the otherwise historic landscape. The present road, from the maintenance area to the fort and visitor center, would no longer be used and would be revegetated. Some of the foot trails, from the visitor center to the fort, would be made handicapped accessible, using routes and materials that are compatible with the historic landscape. Ongoing vegetation management (mesquite removal) is compatible with the present understanding of historically significant vegetation patterns.

Historic Structures—Affected Environment

Fort Bowie is a national historic landmark and contains 74 structures that are on the park's list of classified structures (LCS). The park was listed on the National Register of Historic Places on July 29, 1972. The National

Register documentation (NPS 1979) lists 38 structures as contributing to the significance of the district. These structures are significant because of their association with units of the United States Army in the last half of the nineteenth century, the battles with Apaches that took place in the area, and the Butterfield Stage Line that passes through Apache Pass. The presence of water, at several nearby springs, is the reason why so much history happened here.



The remaining structures consist of stone masonry foundations at the site of the first fort site (1862-1869) and stone masonry foundations, some of which have portions of adobe walls remaining at the second fort site (1869-1894). In addition, there are remains of historic structures at the Indian agency, the cemetery, and the Butterfield Overland Mail Company station.

The stone masonry foundations, at both fort sites, range in height from below the present grade level to a foot or more above grade. Some of the stone masonry foundations once supported wooden frame buildings, such as the commanding officer's home. All of the wooden structures are gone. Most of the

second fort buildings were built with adobe walls, some portions of which remain. The remaining adobe wall sections range in size from fragments approximately 2 feet in height and length to entire buildings with walls, 8 feet high, 35 feet wide, and 155 feet long. All of the buildings with adobe walls, except the Post Traders Store, were originally covered with lime plaster. At the present time, only small areas of this original plaster remain on the walls of the Cavalry Barracks. In all other areas, the original plaster has eroded away, as has varying amounts of the adobe beneath. The remaining adobe wall sections have been encapsulated by lime plaster as a means of preserving the historic adobe. Adobe preservation specialists have determined that this lime plaster encapsulation is

the best preservation method currently available. The method has been used at Fort Bowie since 1990.

The Indian agency ruins consist of adobe walls, approximately 1 foot high, which have been encapsulated in lime plaster. The historic fabric at the cemetery consists of three or four original wooden fence fragments, one relocated but original stone grave marker, and the stone outline and monument pedestal at another grave site. The current wooden fence and wooden grave markers are reproductions. The Butterfield mail stage station consists of stone masonry ruins approximately 3 feet high.

Impacts of No-Action Alternative

The present preservation treatment for all of the exposed stone masonry foundations, at both forts and the Butterfield station, consists of periodic repointing and capping. The remaining adobe wall sections, at the second fort and the Indian agency, are encapsulated in lime plaster, which is periodically maintained. This preservation treatment has been criticized by some architects as being visually distracting and historically inaccurate. However, preservation of the adobe ruins was part of the congressional intent in the establishment of Fort Bowie, and lime plaster encapsulation has been determined to be the best method available for preserving the original adobe.

Impacts of Proposed GMP

The proposed alternative would make only a few changes in the existing fabric treatment. All stone masonry foundations would continue to be periodically repointed and capped. Lime plaster encapsulation, of original adobe wall sections, would also continue to be maintained. Progress in the field of adobe preservation would be noted, but significant changes are not anticipated. It would be inappropriate to use the original walls for preservation treatment testing purposes, but test walls can be built for that purpose. Additional interpretation of the encapsulation process, and the reasons for it, would be presented, so visitors can better understand what they are seeing.

The cemetery now contains several reproductions that are inaccurately located or designed. This includes the wooden picket fence that surrounds the cemetery and the grave markers. The proposed alternative calls for correctly locating the grave marker reproductions and more accurately reproducing and locating the wooden picket fence.

Historic and Scenic Vistas from Within and Outside Park Boundaries—Affected Environment

Views of Fort Bowie from the approach trail and the surrounding area and from the site to surrounding areas are important components of the Fort Bowie cultural landscape. The relatively unaltered viewscape is one of the most important attributes of the park. The rural characteristics of the landscape and the historic scene create the necessary setting that visitors associate with the U.S. soldiers and the Apaches who lived and fought here in the nineteenth century. Preserving the vista helps to give visitors a historic sense of place.

Land within the park has a small visitor center that is visible from the fort and two employee houses and a maintenance facility that are not visible from the fort but are visible from certain nearby locations. In addition there is a surface waterline that runs to the housing and maintenance from a well 2/3 of a mile to the northwest. Limited grazing currently occurs within the park, but a barbed wire fence excludes livestock from the fort area.

Lands adjacent to the park and within the viewing area were used primarily for grazing and, thus far, have retained their historic appearance. The park continues to work with adjacent landowners (BLM and private individuals) to cooperatively manage adjacent lands with uses compatible with park resources.

Impacts of No-Action Alternative

No new construction or other visual intrusion would occur within the park boundary. The present, intrusive, aboveground waterline and the within-park cattle fence would remain. The existing visitor center would continue to be a visible, nonhistoric element within an otherwise historic scene.

Impacts of Proposed GMP

The proposed alternative calls for drilling of a new well in the housing and maintenance

area and the removal of the present aboveground pipeline. The proposal also calls for the removal of grazing from within the park boundary. The within-park fence would be removed, and the entire park boundary would be fenced to exclude livestock. The existing visitor center would continue to be a visible, nonhistoric element within an otherwise historic scene.

Archeological Sites—Affected Environment

Although Fort Bowie is usually thought of as having archeological sites dealing mainly with frontier military occupation, it also has sites dealing with prehistoric and Apache cultures. Stageline, mining, and westward expansion stories are all represented in the park by archeological remains. Many of these sites have had little or no archeological investigations performed on them. Until investigations are feasible, the National Park Service would preserve the long-term integrity of the sites.

At present these resources are experiencing varying degrees of protection for various reasons. Features that are most visible, closest to the ruins proper, and with high visitation receive the most care and preservation. There are small, more remote sites we know very little about that are merely locations on a map. Finally, sites that are the hardest to protect or preserve are those that have not been discovered. A total park archeological survey is of high priority and could result in the discovery and subsequent recording of such cultural sites.

Impacts of No-Action Alternative

Under the no-action alternative, there are few changes involving projects that would affect the parks' archeological resources. For most of the park there is little chance of integrity loss.

At present cattle grazing occurs in about 80% of the park. Within this area archeological sites are damaged by cattle knocking structural rock material around and stepping

on artifacts, neither of which is a desirable treatment of the resource. A no-action alternative would allow cattle to continue to graze within park boundaries, which would continue to impact these archeological resources.

A 250-acre enclosure surrounds the fort, visitor center, Overlook Ridge, and most of the main trail in order to keep cattle out of the most important historic zone and the area most used by visitors.

Many archeological sites are either unknown or hidden under dense mesquite. For this reason little is known about them. Some of these sites are located in areas being restored through mesquite removal. Sites in these areas are watched closely while mesquite is being cut and removed. Slash from the mesquite is piled in locations, especially washes, where there is no chance of damaging other sites. If a no-action alternative is adopted here, archeological sites would continue to be difficult to record and protect. Many of them would remain unknown.

Impacts of Proposed GMP

Under the proposal, cattle grazing in the park would be eliminated. This would involve fencing the entire park boundary, constructing cattle guards and gates, and providing cattle watering facilities to HYL Ranch to replace that which would no longer be available to them. The park's archeological resources would benefit considerably by this action. These resources and the surface artifacts associated with them would no longer be kicked and trampled by cattle moving through. As grasses come back, they would also provide some cover for surface artifacts from occasional relic hunters. This action alone would do much to ensure the park's archeological sites' long-term integrity.

The mesquite removal project would also have an effect on the park's archeological resources. In the past, as mesquite has been

removed new archeological sites have been discovered. Exposing these sites makes it possible for them to be recorded, protected, preserved, and have future archeological investigations performed on them. This would also provide future sites for further interpretation for the park visitor and greatly enhance the park's interpretation in general.

LONG-TERM HEALTH OF NATURAL ECOSYSTEMS

Affected Environment

Fort Bowie NHS lies within the Mexican Highland portion of the Basin and Range Physiographic Province. The 5-km corridor of Apache Pass divides the Chiricahua Mountains to the southeast and Dos Cabezas Mountains to the northwest. Elevations range from 4,550 feet to 5,250 feet. Apache Pass is situated on a northwest-trending overthrust block of Horquilla Limestone that was folded after being overthrust. The folded thrust is separated from the Rattlesnake Point Granite of Sabins to the southwest by the Apache Pass Fault. The major geologic feature of the



area is the Apache Pass Fault, which runs through the historic site. This fault provides the fissure that brings the water of Apache Spring and Siphon Spring to the surface, creating the rich riparian vegetation along Siphon Canyon. Two major rock types are found here—granite and limestone.

Fort Bowie NHS is at the northwestern edge and at the upper elevation extremes of the Chihuahuan Desert. The fort is in a region of complex intermingling of floristic elements from the Chihuahuan Desert, Madrean



evergreen woodlands, and semi-desert grasslands. Desert species such as creosote-bush and velvet

mesquite are found in mixed stands with various grasses including sideoats grama, hairy grama, and tanglehead. The higher slopes support a mixture of chaparral and woodland species such as mountain mahogany, point-leaf manzanita, several oak species, and trees such as Mexican piñon, pines, and junipers. The canyon bottoms support a riparian woodland characterized by velvet ash and netleaf hackberry.

The variety of habitat types within the site contributes significantly to the faunal diversity. A total of 9 species of amphibian, 37 species of reptiles, 65 species of mammals, and 157 species of birds either have been documented or are expected to occur. The only work completed to date was a survey of vertebrate fauna done in 1976 by Cockrum et al. Animals are attracted by the reliable water in Apache Spring. Mammals include mountain lion, whitetail deer, mule deer, coatimundi, ringtail, skunk, collared peccary, coyote, gray fox, black-tailed jackrabbit, desert cottontail, white-throated woodrat, Merriam's kangaroo rat, rock

squirrel, desert shrew, long-tongued bat, Sanborn's long-nosed bat, and cave myotis.

Among the 157 bird species found in the historic site are 7 hummingbird species, 6 hawk species, turkey and black vultures, Montezuma quail, killdeer, roadrunner, seven woodpecker species, and Says' phoebe.

The desert grasslands support a variety of amphibians and reptiles. Those recorded include western spadefoot toad, Great Plains toad, greater earless lizard, Sonora whiptail, Sonora whipsnake, bull snake, and western diamondback rattlesnake.

No fish species are found in Fort Bowie NHS.

The area along the Arizona, New Mexico, and Mexico border is rich in biodiversity. This area contains species that have been adversely affected by human activities, including grazing, hunting, farming, wood gathering, fire suppression, mining, water diversion, groundwater withdrawal, and general development. There have been no federally listed threatened or endangered species reported at Fort Bowie, but the only survey that has been conducted was for reptiles and amphibians. The area's habitat could support the following:

- Cochise pincushion cactus is listed as a threatened species growing on gray limestone, but has not been found (or surveyed for) in the site.
- The USFWS list of endangered and threatened wildlife lists the jaguarundi as endangered, and there have been several recent unconfirmed reports of this small cat at Fort Bowie.
- The Arizona state heritage data management system records show that the endangered lesser long-nosed bat has been documented in the vicinity of Fort Bowie NHS. One of its food sources, agave plants, does occur within the site.
- The jaguar has also been listed as endangered. An animal was killed near the site in the 1980s.

No permanent perennial flowing streams exist within the site. During the summer monsoon season, ephemeral streams can carry large volumes of runoff for brief periods. Siphon Canyon wash forms the main drainage through the site. Three major

springs flow within the pass itself: Bear Spring in Bear Canyon $\frac{1}{2}$ mile to the east of the site, Goodwin Spring in Goodwin Canyon $\frac{1}{4}$ mile to the north of the Apache Pass Road, and Apache Spring.

Two drainages in the site—Siphon Canyon and Willow Gulch—contain features that



define riparian areas. These include vegetation such as netleaf hackberry, willow, and walnut. Specialized soils, the presence of water, and certain faunal species also define riparian areas. Riparian areas, while only contributing a small percent of the land area of the southwest, support a disproportionately large array of the entire faunal makeup of upper and lower desert areas.

Apache Spring has been partially diverted to provide water in support of cattle ranching. One-half the flow is piped to tanks located $\frac{1}{2}$ mile away.

Fort Bowie NHS is classified as a Class II attainment area for air quality. A 1996 study of lichens as bioindicators of air quality (St. Clair) indicates that there is good air quality within the site. Lichens accumulate and store elements in much the same way that filter-feeding shellfish store pollutants in the ocean. Air quality records since 1988 from the nearby Chiricahua NM monitoring station show relatively good air quality. Analysis of this data also reveals the presence of periodic chemicals and particulates from coal-fired generating stations within the region,

including from as far away as Mexico and southern Texas. With the closing of the Douglas copper smelter located 50 miles away, measurable improvements were noted. Air quality can also be adversely affected by wind events that transport dust from the huge Willcox Playa across Apache Pass, and by occasional wildfires or prescribed fires in the area. The general wind patterns bring regional air mass movement from the southwest and tend to support better air quality in the winter months than in the summer months.

Fort Bowie NHS is in Apache Pass, a relatively remote area on the divide between San Simon Valley to the northeast and Sulfur Springs Valley to the southwest, themselves relatively remote and lightly populated areas. The only road through the pass is lightly traveled, generally by site visitors and local ranchers. There is no heavy industry or other human activity that generates sounds to disturb the natural quiet of the site. Only occasional road maintenance by the county and periodic maintenance projects by the site staff provide sources of noise that would be anomalous with the remote nature of the area. The loudest sounds come from occasional aircraft passing low over the pass. Visitors generally walk from the trailhead into the site and engage in low-key activities such as bird watching that do not tend to generate sounds that would disrupt other visitors. Most visitors report that they find the solitude at the site important and desirable. The isolated and relatively wild site is conducive to listening to the sounds of wildlife, wind through the trees, or the trickle of water flowing from Apache Spring. This ability to freely hear natural sounds is an important component of a visitor's experience. Any sounds that make the visitor aware of modern activity are disruptive and diminish the quality and integrity of their visit.

The presence of three major springs in Apache Pass has provided life-supporting water that has dictated human occupation for

hundreds of years. With its natural resources, the pass was important to Apache groups, which tended to live over a wide area in what are now southeast Arizona, southwest New Mexico, and Sonora, Mexico. These same resources attracted European settlers moving through the region in the mid-1800s. Whether the clash of cultures that followed was inevitable or not, the pass served as a major factor in the competition for the water and control of travel through this region.

Apache occupation in the pass included manipulation of the landscape. Inhabitants harvested a variety of plants and animals, cut wood, took water, burned vegetation, and created travel routes. Once the pioneer and military occupation occurred, landscape change happened on a larger scale. Fuel wood and timber were harvested, livestock grazed, areas used as target ranges, forts erected, trash dumps built, water from springs diverted, mines dug, and roads built. Cattle ranching became a regional industry. Probably as a direct result, mesquite plants took on a different role. Transported and aided in their germination by cattle, seeds found a foothold in the upland areas away from their more traditional niche in the wetter riparian bottoms. As grazing removed fine fuels, wildfires became less frequent.

Fire suppression also altered the vegetative landscape, as this powerful shaping force played a lesser role.

Trailhead, Overlook, and Apache Pass Road

Impacts of No-Action Alternative

The current situation with the unpaved parking areas and Apache Pass Road provide modifications in the natural water sheetflow patterns during heavy rainfall periods. Water is prevented from flowing in some areas and is channeled to other areas. This alters the natural erosion and vegetation patterns along the road corridor. One result is the presence of exotic plants and other plants along the road edge that would not otherwise be there.

There is also a localized increase in airborne dust that contributes to a reduction in air quality. Most of the disruption of the ability to hear natural sounds at the site comes in the area of the park nearest to Apache Pass Road. Presence of picnicking provides food attraction for wildlife. The overall effect of this is a moderate, localized negative impact.

Impacts of Proposed GMP

Reconstruction of the ramada, paving of a parking space near the rest room, and the addition of a short trail access to the Overlook for mobility impaired visitors would increase rainfall runoff only slightly. These impacts would be minor and only in the areas mentioned. Efforts would be taken during construction to prevent soil loss during that brief period. Any appropriate drainage needs would be included in the design of the accessible trail section. Visitor use would essentially remain the same as in the no-action alternative, except that additional accessibility information would be provided at the ramada. This could encourage greater use of the administrative road access, which would contribute somewhat to increased airborne dust closer to the major ruins area. This could provide a minor, short-term negative impact to that area.

Trail

Impacts of No-Action Alternative

The 1½-mile trail from the parking area to the main ruins area and the overlook trail require periodic maintenance and erosion control. There is localized soil compaction, interruption of natural water flow, and disruption to wildlife caused by visitor foot traffic. These are minor and localized negative impacts, but necessary if visitors are to be allowed to tour the site on foot.

Impacts of Proposed GMP

Impacts would be the same as described for the no-action alternative.

Cemetery

Impacts of No-Action Alternative

The continued presence of the grave markers contributes slightly to soil compaction caused by visitor foot traffic. The enclosure fence slightly alters large mammal movements. These are minor and very local impacts.

Impacts of Proposed GMP

This proposal seeks to relocate the markers to their historically correct locations and to move the enclosure fence to its proper location. It would also provide expanded interpretation of the cemetery and its story to the visiting public. Under this alternative, there would be minor soil compaction where visitors would walk to look at the new marker locations. Large mammals could be hampered slightly in their movements by the larger fenced area.

Cultural Landscape of the Triangular Valley

Impacts of No-Action Alternative

The current cultural landscape management program affects natural processes in several ways. The objective of converting the primarily mesquite brushland to grassland in the area known as the triangular valley is to restore a critical part of the historical scene to what it was just prior to the military occupation. This is being done by mechanically removing mesquite trees and shrubs and either burning them or physically removing them from the site. The use of chain saws provides a major negative effect to the natural quiet for hikers along the trail that will last as long as the project.

Application of herbicides to sprouting plants would ensure that mesquite plants are killed. During this process, staff would fill in recently eroded areas with mesquite branches to help halt the erosion. Although the intent of this program is to also restore the more natural grassland and savanna, the process involves some surface soil disturbance and an

alteration of the existing plant life and possibly animal life. It is possible that this process would provide short-term encouragement for establishment of such exotic plants as Lehmann lovegrass, a moderate and localized negative impact. It could also help to restore conditions more favorable to a reestablishment of the natural fire regime. This effect is a very local one, involving only 50 acres within the site. Site staff would continue to maintain this grassland through appropriate future reapplication. The overall effect of this action is positive, although the use of chain saws does adversely affect the natural quiet. The staff has attempted to do this work primarily during the lightly visited summer months, avoiding weekends when greater visitation is likely.

Impacts of Proposed GMP

Impacts to the natural ecosystem and ability to hear natural quiet from the proposed alternative would be essentially the same as those created by the existing use.

First Fort

Impacts of No-Action Alternative

Routine preservation of stone masonry ruins and visitor access provides minor natural ecosystem impacts. There is soil compaction along the trail and within the ruins themselves. Periodic stabilization efforts require the use of mechanical equipment, which conflicts greatly with the natural quiet of this area that is away from vehicle traffic. These are fairly moderate negative impacts, but are infrequent and very localized. They would continue into the future.

Impacts of Proposed GMP

Impacts of the proposed alternative are the same as those in the no-action alternative.

Second Fort

Impacts of No-Action Alternative

Impacts of the no-action alternative are similar to those that would occur at the first fort, except that they are larger in area. They also include the use of vegetation management to control exotic plants and brushy plants such as mesquite. The use of chain saws creates a very disruptive impact on the natural quiet but is only occasionally needed.

Impacts of Proposed GMP

Impacts of the proposed alternative are the same as in the no-action situation. The only difference would occur if new adobe walls were built at the historic site to aid in interpreting the building construction. This could happen in the second fort area, or closer to the visitor center. If this were to happen, there would be minor and localized negative impacts from the construction of the walls. These would involve some soil compaction and vegetation trampling during the construction and temporary intrusions into the natural quiet caused by the use of equipment during the process.

Visitor Center and Trails to Second Fort

Impacts of No-Action Alternative

Presence and continued use of the visitor center with its exhibits, book sales, and administrative offices causes minor impact to the natural ecosystem. There is some soil compaction along the trails. Since it is a daytime-only operation with no light, there are limited impacts on nocturnal wildlife. There are no aboveground utilities that would necessitate vegetation trimming.

Impacts of Proposed GMP

Impacts of the proposed alternative are similar to those of the no-action alternative. In addition, construction of an accessible rest room facility, approach roadway, and buried utilities and conversion of some trails to

accessible trails would provide localized and moderate soil disturbance. These disturbances would also include vegetation displacement, disruption of visitors' ability to hear natural quiet, and air quality impacts caused by dust from the construction activity. Mitigation methods would include wetting the ground to reduce airborne dust, revegetating with native plants, and timing some of the construction work to take place during times that are less disruptive for visitors. Use of the new access road would bring motor vehicles closer to the main ruins area and would increase vehicular sounds for visitors at the visitor center and in the second fort. The net effect of this impact would depend upon the number of additional visitors that would use this access route, as compared with the number that now drive right to the visitor center.

Housing, Maintenance Area, and Administrative Road

Impacts of No-Action Alternative

Because of the presence of developed resources—two residences, a maintenance complex, offices, aboveground gas tank, parking lot, supporting utilities, and the administrative road—there is moderate impact to the natural ecosystem in a very localized area. To construct these facilities on a steep slope, significant ground modifications were necessary. Rainfall is channeled from the road and building runoff, which is an alteration to its previous natural flow. Nighttime lighting attracts insects and bats. Human food (residences) serves to attract other wildlife. Human activity also negatively impacts the natural quiet, but this area is away from the site's visitor areas.

Impacts of Proposed GMP

Some of the impacts mentioned in the no-action alternative would also apply under this proposal. The addition of VIP trailer pads with hookups in the maintenance area would increase mechanical sounds in the immediate

area during the construction phase. There would be some soil compaction. The presence of additional staff living in the area would provide for a general increase in human-generated impacts (noise, light, and food source). Construction of a new well would also provide for a short-term, but moderate, negative impact to natural quiet and air quality. It would also cause soil compaction. Removal of the 2/3 mile-long pipeline over the saddle to Siphon Canyon would provide a major positive effect along the length of that pipeline. Wildlife movements would no longer be hampered and frequent maintenance activities would no longer be required along the pipeline, with attendant vegetation and soil trampling, noise intrusion, and vehicle trips up Siphon Canyon to service the wellhead.

Butterfield Trail

Impacts of No-Action Alternative

Maintenance and use of this trail creates soil compaction along the length of the trail. Wildlife in the lesser-visited portions of the site are disturbed by the occasional humans and horses that use this trail. Erosion is accelerated by the foot and horse traffic, necessitating preventative maintenance.

Impacts of Proposed GMP

Impacts of the proposal would be the same as those caused by the no-action alternative.

Apache Spring

Impacts of No-Action Alternative

One-half of the water from Apache Spring currently is provided for cattle operations through a buried pipe to tanks $\frac{1}{4}$ mile away, as part of an entitlement to the permittee. This reduction in the normal flow from the spring into Siphon Canyon reduces the natural water availability for plants and animals. This is a local negative impact, affecting flora and fauna along the length of Siphon Canyon. It also negatively affects migrating animals,

such as neotropical migratory birds, and animals with large home ranges, such as mountain lions. Riparian areas provide for wildlife habitat far in excess of their limited area. Any reduction in available water flow, especially during drought periods, could be critical or fatal to certain species. This is a negative impact that would be caused by the reduction of water in the area, and additional research would be needed to quantify impacts. This changes the habitat to one of drier plant communities, thus reducing support for existing species.

Impacts of Proposed GMP

Under the proposal, the natural ecosystem would benefit as the natural spring flow is returned and the stock tanks are removed. There would be a short-term, local negative impact as a new water pipeline is installed from the site wellhead to new tanks in that area. This work would be done in the dry stream bottom of Siphon Canyon and would impact the natural quiet temporarily. All the spring water would be available for use by wildlife, which would also benefit endangered animals.

Grazing

Impacts of No-Action Alternative

With the removal of cattle, there would be no further negative environmental affects.

Impacts of Proposed GMP

With the removal of cattle, there would be no further negative environmental affects.

ECONOMIC CONTRIBUTION TO GATEWAY COMMUNITIES

Affected Environment

Few services are located near the park. Fort Bowie is 11 miles from the town of Bowie. Services in Bowie are minimal, with only one restaurant and a gas station. A wider range of services (including lodging, gas, and food) can be found 30 miles away in the town of

Willcox, Arizona. Willcox is connected to I-10, a major transportation interstate.

Park tourism, park-related federal expenditures, and expenditures by other nonlocal parties on park-related activities and projects contribute to the local economy. Total combined sales from park operating expenditures is about \$738,000 annually. Total tax revenue being gained from park-related expenditures is about \$62,000 annually. Operations and use of the park result in about 31 jobs in the area.

Impacts of No-Action Alternative

The no-action alternative would continue to provide income to the local economy. Total combined sales, sales benefits from park tourism, jobs created, and total tax revenue being gained from park-related activities would be the same as described above.

Impacts of the Proposed GMP

The proposal would provide a minor short-term increase in the economic contribution to the local community. There are two types of increase estimated, short-term (from capital investment) and long-term (from an increase in the annual operating budget). In the short term, it is estimated that the expenditure of \$541,000 would create a one-time benefit to the economy of \$973,000 in total combined sales, approximately \$78,000 in tax revenue, and create 39 jobs for the life of the projects. This would not necessarily occur in the local economy.

In the long term, there are no recurring annual anticipated economic effects. For every 1,000 additional visits, approximately \$38,000 in combined sales is added to the local economy along with \$3,200 in increased tax revenue. Two additional jobs are also created. For every \$100,000 expended by the park, approximately \$180,000 in combined sales is added to the local economy along with \$15,000 in increased tax revenue. Eight additional jobs are also created.

There would be a minor short-term beneficial effect on the economy from the expenditure of funds for infrastructure improvements.

ADJACENT LANDOWNERS

Affected Environment

Livestock grazing is the principal land use in this generally arid region, and cattle ranchers have leased large areas of public domain adjoining the historic site for grazing purposes. Irrigation farming in the nearby valleys has increased on a limited basis and appears to have a future in the local economy. Tourism currently contributes little to the economy compared with agriculture. The tourism economy is increasing and will continue into the future. Four units of the national park system, portions of three national forests, and other federal and state recreation lands lie within a 100-mile radius of Fort Bowie. The city of Willcox owns and operates the Cochise Visitor Center and Museum, situated on Interstate 10. The museum presently provides exhibits relating to the Chiricahua Apaches and Fort Bowie.

Land development companies are currently active throughout the region, specializing in selling desert and mountain properties for retirement homes and land investments. Mining, once the economic mainstay of southeastern Arizona, is facing an uncertain future as mineral deposits become exhausted and more stringent environmental protection laws are enacted.

Grazing within the park is being phased out. Cattle grazing at Fort Bowie was administered by the Bureau of Land Management in cooperation with NPS. Under two grazing allotments, the Apache Spring and Silver Strike allotments, approximately 750 of Fort Bowie's 1,000 acres, were grazed. Only about 250 acres immediately surrounding the fort were free from grazing. The allotments were managed under BLM allotment management plans (AMP), and both allotments were leased to HYL Ranch. An

agreement has been reached with HYL Ranch to phase out grazing within the park.

Authorized use for the Apache Spring AMP is 175 cattle for six months. Actual use averages at or below authorized use. Park Service lands account for approximately 11% of the total allotment of 5,515 acres.

The Silverstrike AMP authorizes 99 cattle yearlong, with proposed increases of about 25 cattle. Actual use has been at or below authorized use. Park Service lands account for approximately 3% of the total allotment of 10,985 acres.

The park is surrounded on the north and south by HYL Ranch and allotments leased to them by BLM. A small tract of additional private land adjoins the park on the west boundary. The Bear Springs ranch borders the park on east end of Fort Bowie.

Impacts of No-Action Alternative

The no-action alternative impacts are the same as described for the proposal.

Impacts of Proposed GMP

With the HYL Ranch agreement, grazing in the park will be phased out and water for cattle from Apache Spring (based upon HYL Ranch's $\frac{1}{2}$ right) will be available for cattle operations off of park lands.

This alternative would not impact the private landowners to the east and west.

OPERATIONAL EFFICIENCY

Affected Environment

Fort Bowie National Historic Site is administered in conjunction with Chiricahua National Monument with a combined annual appropriation of approximately 1.2 million dollars. Permanent staffing at Fort Bowie consists of one full-time unit manager, one less-than-full-time park ranger, one full-time maintenance worker, and one full-time preservation specialist. Additional staffing is made available from Chiricahua NM as

needed. The site is approximately 30 miles southeast of Willcox. The majority of supplies and materials to support operational activities are acquired in Willcox or Safford, Arizona. Safford is approximately 50 miles north of the park.

Impacts of No-Action Alternative

Impacts to operational efficiencies in the no-action alternative would be a continuation of the status quo.

Excessive human and fiscal resource commitments would continue to be devoted to the inefficient water system. The original development plan included a housing and maintenance complex to be constructed in Siphon Canyon, approximately 2/3 mile to the northwest of its present location. A water well was drilled at that location. The proposed development was subsequently built at its present location, but the original well was used in spite of the distance. About 3,200 feet of surface pipe brings the water up and down the intervening hills to a 10,000-gallon reservoir, from which it flows by gravity to the developed area. The route for the water pipeline and associated power conduit was designed to avoid archeological sites, but the constructed route did not follow the approved route and crosses at least one cultural resource (the fort's trash dump). The exposed pipe is an unsightly intrusion, and the entire stretch requires constant monitoring and maintenance. Electricity is not available at the well site and consequently an aboveground conduit protects the electrical lines adjacent to the water pipeline. The continuous expansion/contraction of both the water pipeline and the electrical conduit results in frequent failure. The cost for electricity for operating the pump is high. The water system maintenance costs average approximately \$40,000.

The existing rest room facility at the visitor center consists of one portable pit toilet. The facility is at a considerable distance from

vehicular access, and the resulting maintenance costs are expensive. The facility does not meet USPHS standards because of the type of materials used to construct the facility. The porous surfaces are not easily cleaned. Lack of flushing toilets results in significant odors, and thus visitors frequently refuse to use them. This results in inappropriate disposal of human waste along the trails. Expensive maintenance and upkeep of the deficient rest room facility would continue.

The commitment of human resources to patrol the boundary is substantial owing to the fact that the lack of fencing and delineation of the boundary is confusing. Increased patrols are necessary to warn hunters of the actual boundary. Frequent trespassing occurs because of the lack of a defined boundary.

Impacts of the Proposed GMP

The replacement water well in the vicinity of the housing area would greatly decrease the annual maintenance and upkeep of the water system.

A new well drilled in the vicinity of the developed area would eliminate the 2/3-mile section of water pipeline and associated power conduit. The previous disturbance to the cultural resources can be rehabilitated.

Replacement of the visitor center rest room facility would enhance efficiency by substantially reducing operational costs. A modern flushing rest room facility would meet handicapped accessibility standards. Modern construction materials would be easily cleaned and conform to USPHS standards. The existing septic system was designed to accommodate the new facility.

Fencing of the boundary would reduce the amount of patrol time because the boundary would be clearly delineated. Trespassing would be minimized.

SHORT-TERM AND LONG TERM EFFECTS OF THE PROPOSAL

Compared with a land base of almost 1,000 acres in the park, land use consumption would not change. The proposal would improve long-term management, provide better protection of the environment, and enhance visitor experience.

Interpretation and visitor orientation would be more effective. Also, managers would be more efficient and effective in carrying out long-term management goals through the use of broadly defined management zones contained in the proposal.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES RELATED TO THE PROPOSAL

Some archeological sites are subject to irreversible damage because of vandalism and loss of contextual relationships between

objects that compromise a site. When objects are removed from a site, or moved within a site, this irreversible damage affects the potential for future archeological research to fully derive all scientific knowledge from that particular site.

Any increased visitation would increase the amount of damage to archeological sites and the loss of artifacts no matter what protective measures are put in place or what messages are provided through interpretation and education.

CUMULATIVE EFFECTS

The impact analysis of the proposed GMP looks at all actions in the past, present, and reasonably foreseeable future that would affect Fort Bowie and its visitors. No cumulative effects or elements of precedence were identified by any of the alternatives considered.

CONSULTATION/COORDINATION

PUBLIC INVOLVEMENT AGENCIES CONSULTED

As described in the Purpose and Need, Planning Process section, scoping was conducted twice for the Fort Bowie GMP. This draft environmental impact statement will be available for public review for a minimum of 30 days.

The following agencies were contacted during preparation of the plan:

U.S. Fish and Wildlife Service

Arizona State Historic Preservation Office

PLANNING TEAM

National Park Service

Alan Cox, Superintendent, Chiricahua NM and Fort Bowie NHS— BS in Criminal Justice from Sul Ross State University, Alpine Texas. 24 years NPS at 7 different National Park Units. Responsible for overall process, adjacent land owners, operational efficiency, purpose and need, alternatives, economic contributions, and final recommendation to Regional Director

Kathy M. Davis, Resources Manager, Southern Arizona Office—Masters of Forestry from University of Montana, 20 years NPS, 3 years USFS, 5 years CSIRO in Australia. Responsible for coordination, purpose and need, and list of recipients.

Don Goldman, Planner, Intermountain SO-Santa Fe— B.A.A.S. Geography, 36 years NPS, 5 years University of California at Los Angeles (UCLA). Responsible for purpose and need, alternatives, consultation/coordination, cumulative effects, land appendixes.

Lori Kinser, Visual Information Specialist, Intermountain SO-Denver—24 years as a primary provider of graphic support. Responsible for the production of graphics.

Larry Ludwig, Unit Manager, Fort Bowie NHS—10 years with National Park Service, B.S. History, Arizona State University. Responsible for visitor experience and archeological sections.

Christopher Marvel, Lead Planner, Intermountain SO-Denver—BLA/BS NYS College of Environmental Science and Forestry/Syracuse University, 21 years Government (10 USFS, 11 Year NPS). Responsible for coordination, purpose and need, alternatives, economic contributions.

Chris Turk, Regional Environmental Quality Officer, Intermountain SO-Denver—B.A.A.S. Biological Sciences, 21 years NPS, 5 years U DE College of Marine Studies. Responsible for coordination, purpose and need, and alternatives.

Alan Whalon, Resource Manager, Chiricahua NM—MFS, Natural Resource Management (Yale); Private Consulting Forester, Currently Chief, Resources Management & Education (Chiricahua NM & Fort Bowie NHS); also worked with NEPA and NHPA process at Acadia NP, Chaco Culture NHP, Big Cypress National Preserve, Hovenweep NM, Assateague Island NS, Hampton NHS. Responsible for long-term health of natural systems.

Jill Cowley, Historical Landscape Architect and Manager of the Santa Fe Office Cultural Landscapes program, National Park Service. Masters of Landscape Architecture from Utah State University. 11 years National Park Service (cultural landscapes and park planning), 1 year Forest Service (site planning/design), 1/2 year visiting lecturer at Charles Sturt University, Australia. Responsible for cultural landscapes.

Volunteers in Parks

Kenneth Bennett, Historical Architect, Retired National Park Service

Kane Orr, Student, Mesa Community College/Arizona State University

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Walt Saenger, Management Assistant, Chiricahua NM

Elvin Cluff, Maintenance, Chiricahua NM
Rob Danno, Chief Ranger, Chiricahua NM
George Teague, Western Archeological Conservation Center, National Park Service
Bryant Smith, U.S. Forest Service
Lynn Saline, Bureau of Land Management
Dan Fischer, Park Neighbor
Don Higgins, Park Neighbor
Linda Carlson, Carlson Editing

LIST OF RECIPIENTS

Representative Jim Kolbe, House of Representatives
Senator Jim McCain, United States Senator
Dave Simon, Southwest Regional Director, National Parks and Conservation Association
Mayor Marlin Easthouse, Mayor of Willcox, AZ

Mayor Ray Borane, Mayor of Douglas, AZ
George Teague, Director, Western Archeological Center
Eddie Browning, Executive Director, Willcox Chamber of Agriculture and Commerce
John McGee, Forest Supervisor, Coronado National Forest
Douglas Hardy, District Ranger, Douglas Ranger District, Coronado National Forest
William T. Civish, Field Office Manager, Bureau of Land Management
USFWS, Regional Director
Jim Garrison, AZ State Historic Preservation Office
Bill Halvorson, USGS/ BRD, AZ CPSU Station Leader
Dan Fischer, Park Neighbor
Jim Riggs, Park Neighbor

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1992 *Vegetation and Flora of Fort Bowie National Historic Site, Arizona*. Cooperative National Park Resources Studies Unit Technical Report 92/43. University of Arizona, Tucson.

APPENDIX 1: LEGISLATION

Fort Bowie

An Act to authorize the establishment of the Fort Bowie National Historic Site in the State of Arizona, and for other purposes. (78 Stat. 681)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of the Interior is authorized to designate, for preservation as the Fort Bowie National Historic Site, the site and remaining historic structures of old Fort Bowie, situated in Cochise County, Arizona, together with such additional land, interests in land, and improvements thereon, as the Secretary in his discretion may deem necessary to accomplish the purposes of this Act: *Provided*, That the Secretary shall designate no more than one thousand acres for inclusion in said site.

SEC. 2. Within the area designated pursuant to section 1 hereof, the Secretary of the Interior is authorized, under such terms, reservations, and conditions as he may deem satisfactory, to procure by purchase, donation, with donated funds, exchange, or otherwise, land and interests in land for the national historic site. When the historic remains of old Fort Bowie and all other privately owned lands within the aforesaid designated area have been acquired as provided in this Act, notice thereof and of the establishment of the Fort Bowie National Historic Site shall be published in the Federal Register. Thereupon all public lands within the designated area shall become a part of the Fort Bowie National Historic Site.

SEC. 3. The Fort Bowie National Historic Site, as constituted under this Act, shall be administered by the Secretary of the Interior as a part of the national park system, subject to the provisions of the Act entitled "An Act to establish a National Park Service, and for other purposes", approved August 25, 1916 (39 Stat. 535), as amended, the Historic Sites Act of August 21, 1935 (49 Stat. 666), and all laws and regulations of general application to historic areas within the national park system.

SEC. 4. There is hereby authorized to be appropriated a sum not to exceed \$550,000 to carry out the purposes of this Act.

Approved August 30, 1964.

Legislative History

House Report No. 1297 (Committee on Interior and Insular Affairs).

Senate Report No. 1280 accompanying S. 91 (Committee on Interior and Insular Affairs).

Congressional Record, Vol. 110 (1964):

Aug. 1: S. 91 considered and passed Senate.

Aug. 3: Considered and passed House.

Aug. 14: Considered and passed Senate.

APPENDIX 2: FUTURE PLANS AND STUDIES NEEDED

Future plans and studies needed for Fort Bowie NHS include:

- Fire management plan
- Cultural landscape inventory and report
- Entire park archeological inventory
- Historic resources study
- Collections management plan
- Park administrative history
- Inventory of mammals, birds, and plants
- Historic structures preservation guide
- Ethnographic overview and assessment
- Estimated development costs
- Comprehensive interpretive plan
- Archeological survey
- Biological surveys
- Viewshed analysis
- Vegetation management plan
- Boundary study

Clemson University



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